Carrier®
HEATING & COOLING

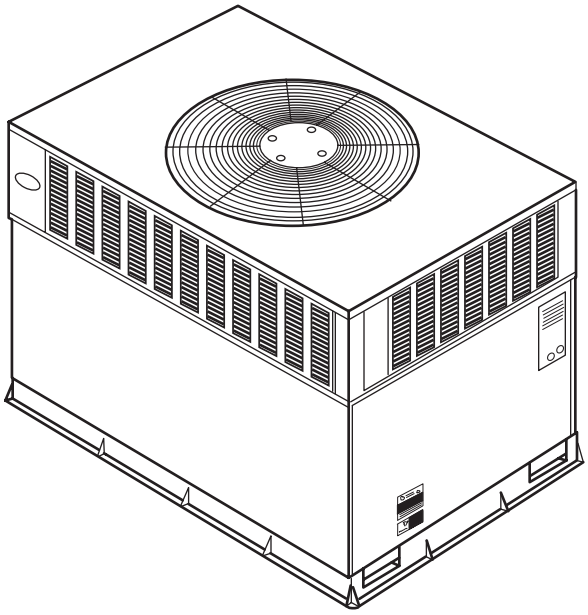
Product Data

50GL Single-Package Electric Cooling Units

with Puron® (R-410A) Refrigerant

2 to 5 Nominal Tons

Puron®
the environmentally sound refrigerant



UNIT 50GL

Single-Package Products with Energy-Saving Features and Puron® refrigerant.
- Low Sound Levels
- 12 SEER
- Variable Speed Blower Option

Features/Benefits

One-piece cooling unit with optional electric heater, low installation cost, dependable performance and easy maintenance.

Efficient operation

High-efficiency design with a SEER (Seasonal Energy Efficiency Ratio) of 12.0.

Puron® Environmentally Sound Refrigerant is Carrier's unique refrigerant designed to help protect the environment. Puron is an HFC refrigerant which does not contain chlorine that can harm the ozone layer. The most important advantage of Puron refrigerant is that it has not been banned in future air conditioning systems as the traditional refrigerant R-22 has been. Puron refrigerant is in service in thousands of systems proving highly reliable, environmentally sound performance.

ComfortHeat™ Technology featuring Variable Speed Blower motors provides better comfort and energy efficiency. You can expect up to 30 times better dehumidification; a SEER boost of up to 12.7; economical constant fan for less than $30 a year, which provides improved indoor air quality and more even temperatures from room to room; and reduced indoor noise due to lower air velocity. In addition, you'll realize improved installation flexibility with 3 different airflow choices for best overall comfort.

Easy Installation

Factory-assembled package is a compact, fully self-contained, electric

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cooling unit that is pre-wired, pre-piped, and pre-charged for minimum installation expense. 50GL units are available in a variety of standard cooling sizes with voltage options to meet residential and light commercial requirements. Units are light weight, and install easily on a rooftop or at ground-level. The hightech, composite base pan eliminates rust problems associated with ground level applications.

Durable, dependable components

Scroll Compressors are designed for high efficiency. Each compressor is hermetically sealed against contamination to help promote longer life and dependable operation. Vibration isolation provides quiet operation. Compressors have internal high-pressure and overcurrent protection.

Convertible duct configuration

Unit is designed for easy use in either downflow or horizontal applications. Each unit is easily converted from horizontal to downflow.

Direct-drive multi-speed, PSC (permanent split capacitor) blower motor is standard on all 50GL models.

Direct-drive, PSC condenser-fan motors are designed to help reduce energy consumption and provide for cooling operation down to 40°F outdoor temperature. Motormaster® II low ambient kit is available as a field-installed accessory.

Corporate thermostats include the Time Guard® II anti-short cycle protection circuitry. If a non-Corporate thermostat without anti-short cycle protection, is used the Time Guard II field installed anti-short cycle kit is recommended.

Refrigerant system is designed to provide dependability. Liquid refrigerant filter driers are used to promote clean, unrestricted operation. Each unit leaves the factory with a full Puron® refrigerant charge. Refrigerant service connections are standard on the suction and discharge lines for checking operating pressures.

Evaporator and condenser coils are computer-designed for optimum heat transfer and cooling efficiency. The evaporator coil is fabricated from copper tube and aluminum fins and is located inside the unit for protection against damage. The condenser coil is internally mounted on the top tier of the unit. Copper fin coils and pre-coated fin coils are available from the factory by special order. These coils are recommended in applications where aluminum fins are likely to be damaged due to corrosion. They are ideal for seacoast applications.

High and Low Pressure Switches give added safety and reliability to the compressor.

Low sound ratings ensure a quiet indoor and outdoor environment with sound ratings as low as 72 dB.
(See page 3.)

Easy to service cabinets provide easy single-panel accessibility to serviceable components during maintenance and installation. The basepan with integrated drain pan provides easy ground level installation with or without a mounting pad. Convenient handholds are provided to manipulate the unit on the jobsite. A nesting feature ensures a positive basepan to roof curb seal when the unit is roof mounted. A convenient 3/4-in. wide perimeter flange makes frame mounting on a rooftop easy.

Louvered Grille provides hail and vandalism protection for the coil.

Downflow operation is easily provided in the field to allow vertical ductwork connections. The basepan utilizes knockout style seals on the bottom openings to ensure a positive seal in the horizontal airflow mode.

Cabinets are constructed of heavy-duty, phosphated, zinc-coated prepainted steel capable of withstanding 500 hours of salt spray. Interior surfaces of the evaporator and electric heater compartments are insulated with cleanable semi-rigid insulation board, which keeps the conditioned air from being affected by the outdoor ambient temperature and provides improved indoor air quality. (Conforms to American Society of Heating, Refrigeration and Air Conditioning Engineers No. 62P.) The sloped drain pan minimizes standing water in the drain, which is provided with an external drain.

Standard metal duct covers with insulation come with the unit and cover the horizontal duct openings. These can be left in place if the unit is converted to downflow.

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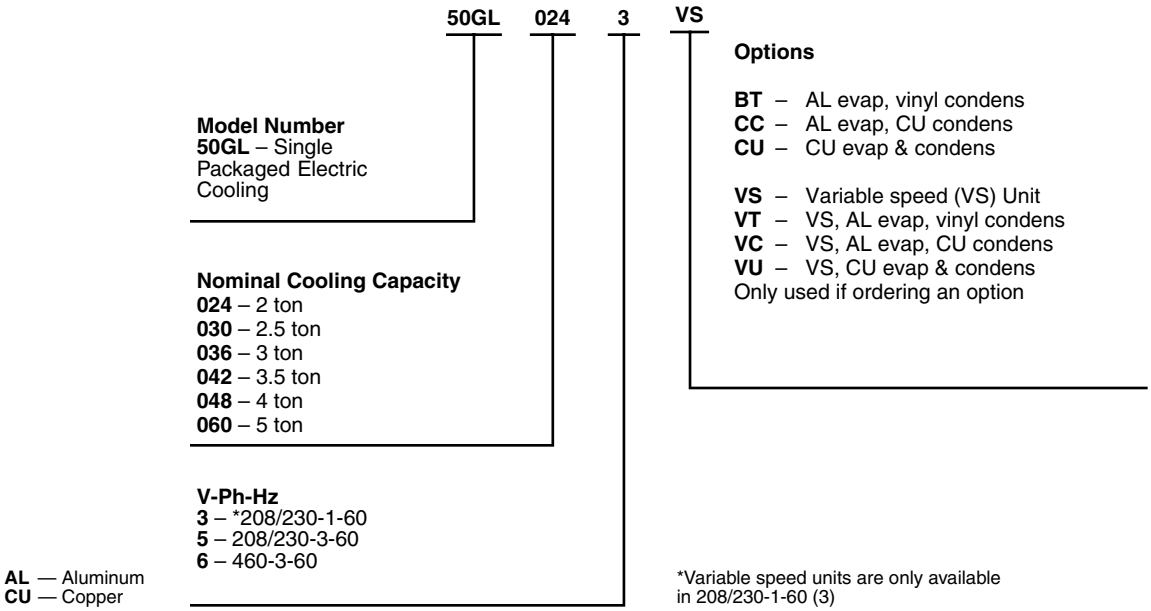
Model number nomenclature


50GL 024 3 VS
Model Number
50GL – Single Packaged Electric Cooling
Nominal Cooling Capacity
024 – 2 ton
030 – 2.5 ton
036 – 3 ton
042 – 3.5 ton
048 – 4 ton
060 – 5 ton
V-Ph-Hz
3 – *208/230-1-60
5 – 208/230-3-60
6 – 460-3-60
Options
BT – AL evap, vinyl condens
CC – AL evap, CU condens
CU – CU evap & condens
VS – Variable speed (VS) Unit
VT – VS, AL evap, vinyl condens
VC – VS, AL evap, CU condens
VU – VS, CU evap & condens
Only used if ordering an option
AL — Aluminum
CU — Copper
*Variable speed units are only available in 208/230-1-60 (3)

ARI* capacities

COOLING CAPACITIES AND EFFICIENCIES

UNIT 50GL	NOMINAL TONS	STANDARD CFM	NET COOLING CAPACITIES (Btuh)	SEER†	SOUND RATINGS‡ (dB)
024	2	800	24,000	12.0	72
030	2-1/2	1000	29,000	12.0	72
036	3	1200	35,000	12.0	72
042	3-1/2	1400	41,000	12.0	73
048	4	1600	48,000	12.0	78
060	5	1750	59,000	12.0	76

LEGEND

dB — Sound Levels (decibels)
db — Dry Bulb
SEER — Seasonal Energy Efficiency Ratio
wb — Wet Bulb
* Air Conditioning & Refrigeration Institute.
† Rated in accordance with U.S. Government DOE Department of Energy) test procedures and/or ARI Standard 210/240-94.
‡ Tested in accordance with ARI Standard 270-95 (not listed in ARI).

NOTES:

1. Ratings are net values, reflecting the effects of circulating fan heat. Ratings are based on:
   Cooling Standard: 80°F db, 67°F wb indoor entering-air temperature and 95°F db outdoor entering-air temperature.
2. Before purchasing this appliance, read important energy cost and efficiency information available from your retailer.

50GL WITH ICM FIOP RATINGS

UNIT 50GL	"A"** CAPACITY	"A"** EER	SEER
024	24,000	10.7	12.7
030	29,000	10.7	12.7
036	35,000	10.6	12.5
042	41,000	10.7	12.5
048	48,000	10.5	12.3
060	59,000	10.4	12.3

**"A" Capacity- 80°F indoor db/67°F indoor wb & 95°F outdoor db.

OUTDOOR SOUND: ONE-THIRD OCTAVE BAND DATA—DECIBELS

UNIT	50GL					
Frequency (Hz)	024	030	036	042	048	060
63	44.8	48.0	50.0	49.1	51.4	53.7
125	60.4	58.2	60.4	63.9	65.2	62.6
250	58.3	59.2	61.6	65.2	69.7	65.9
500	64.8	65.8	66.9	67.9	72.7	70.6
1000	66.9	67.7	67.8	66.7	72.9	71.6
2000	64.3	64.8	64.6	63.8	69.8	68.2
4000	59.8	61.8	60.7	60.2	65.8	65.8
8000	51.8	53.6	52.8	50.7	57.9	58.3

Physical data

UNIT SIZE 50GL	024	030	036	042	048	060
NOMINAL CAPACITY (ton)	2	2-1/2	3	3-1/2	4	5
OPERATING WEIGHT (lb)	270	291	299	321	326	399
COMPRESSOR	Scroll					
REFRIGERANT (R-410A)						
Quantity (lb)	5.0	5.5	6.9	9.0	9.5	10.0
REFRIGERANT METERING DEVICE	Accurater® Piston					
Orifice ID (in.)	.057	.057	.065	.070	.073	.086
CONDENSER COIL						
Rows—Fins/in.	1—17	1—17	2—17	2—17	2—17	2—17
Face Area (sq ft)	9.1	12.7	9.1	12.3	12.3	16.4
CONDENSER FAN						
Nominal Cfm	2350	2350	2350	2350	3300	3300
Diameter (in.)	22	22	22	22	22	22
Motor Hp (Rpm)	1/8 (825)	1/8 (825)	1/8 (825)	1/8 (825)	1/4 (1100)	1/4 (1100)
EVAPORATOR COIL						
Rows—Fins/in.	3—15	3—15	3—15	3—15	4—15	4—15
Face Area (sq ft)	3.7	3.7	3.7	4.7	4.7	4.7
STANDARD EVAPORATOR BLOWER						
Nominal Airflow (Cfm)	800	1000	1200	1400	1600	1750
Size (in.)	10 x 10	10 x 10	10 x 10	11 x 10	11 x 10	11 x 10
Motor (Hp)	1/4	1/4	1/2	3/4	3/4	1.0
EVAPORATOR BLOWER ICM FIOP ONLY						
Nominal Airflow (Cfm)	800	1000	1200	1400	1600	1750
Size (in.)	10 x 10	10 x 10	10 x 10	11 x 10	11 x 10	11 x 10
Motor (Hp)	1/2	1/2	3/4	3/4	3/4	1.0
HIGH-PRESSURE SWITCH (psig)						
Cutout	610 ± 15					
Reset (Auto.)	420 ± 25					
LOSS-OF-CHARGE/LOW-PRESSURE SWITCH						
(Liquid Line) (psig)						
Cutout	20 ± 5					
Reset (Auto.)	45 ± 10					
RETURN-AIR FILTERS (in.)*						
Throwaway	20 x 20 x 1	20 x 20 x 1	20 x 24 x 1	24 x 30 x 1	24 x 30 x 1	24 x 30 x 1

* Required filter sizes shown are based on the larger of the ARI (Air Conditioning & Refrigeration Institute) rated cooling airflow or the heating airflow velocity of 300 ft/min for throwaway type or 450 ft/min for high-capacity type. Air filter pressure drop for non-standard filters must not exceed 0.08 in. wg.

Options and accessories

Factory-installed options

Coil options include copper/copper and vinyl-coated construction for refrigerant coils. Units are shipped standard with copper tube/aluminum fin construction. See model number nomenclature for coil options.

Electronic Variable-Speed Motor — ICM Motors (Integrated Control Motor) provide variable-speed operation to optimize comfort levels year round. They are also more economical to operate than standard motors.

Field-installed accessories

Economizer with Solid-State Controls and Barometric Relief Dampers
Manual Air Damper (25% open)
Electric Heaters
Filter Rack
Flat Roof Curbs (8-in. and 14-in.)
Square-to-Round Duct Transition Kit
Thermostats
Crankcase Heater
Rigging Kit
Low Ambient Kit (Motormaster® II Control)
Solid-State Time Guard® II Device
Lifting Kit
Compressor Hard Start Kit

Economizer with solid-state controls and barometric relief dampers includes filter racks and provide outdoor air during cooling and reduce compressor operation.

Manual outside air damper includes hood and filter rack with adjustable damper blade for up to 25% outdoor air.

Electric heaters provide heat in the unit when required. Each package has a heater module that slides into the controls compartment. Heater sizes range from 5.0 to 20.0 kW. The electric heater design allows the use of a single-point power supply for the entire unit, resulting in lower installed costs.

Flat roof curbs in both 8 in. and 14 in. sizes are available for roof mounted applications.

Square-to-round duct transition kit enables 024-048 size units to be fitted to 14 in. round ductwork.

Thermostats provide control for the system heating and cooling functions. Thermostat models are available in both programmable and non-programmable versions.

Lifting kit, including 4 metal brackets that fit into the hand-holds, a support strap and two safety straps, is available to assist in lifting this product onto a roof application.

Crankcase heater provides anti-floodback protection for low-load cooling applications.

Low-ambient kit (Motormaster II control) allows the use of mechanical cooling down to outdoor temperatures as low as 0°F.

Solid-state Time Guard II device provides short-cycling protection for the compressor. Not required with corporate electronic thermostats.

Filter rack features easy installation, serviceability, and high-filtering performance for vertical applications.

Compressor Hard start kit assists compressor start-up by providing additional starting torque on single phase units and prolongs compressor motor life.

ELECTRIC HEATERS

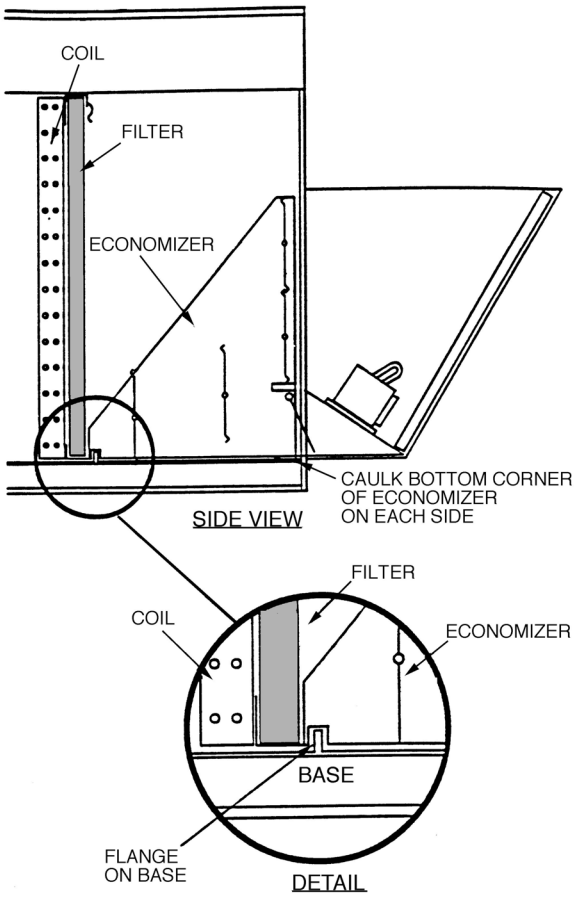
ODS CATALOG ORDERING NO.	NOMINAL CAPACITY (kW)	USED WITH SIZES					
		024	030	036	042	048	060
ELECTRIC HEATERS (208/230 — SINGLE PHASE — 60 Hz)							
CPHEATER052A00	5.0	X	X	X	X	X	X
CPHEATER069A00	7.5	X	X	X	X	X	X
CPHEATER065A00	10.0	X	X	X	X	X	X
CPHEATER051A00	15.0		X	X	X	X	X
CPHEATER054A00	20.0				X	X	X
ELECTRIC HEATERS (208/230 — 3 PHASE — 60 Hz)							
CPHEATER055A00	5.0		X	X	X	X	X
CPHEATER056A00	10.0		X	X	X	X	X
CPHEATER057A00	15.0		X	X	X	X	X
CPHEATER059A00	20.0				X	X	X
ELECTRIC HEATERS (460 V — 3 PHASE — 60 Hz)							
CPHEATER060A00	5.0			X	X	X	X
CPHEATER061A00	10.0			X	X	X	X
CPHEATER062A00	15.0			X	X	X	X
CPHEATER063A00	20.0				X	X	X

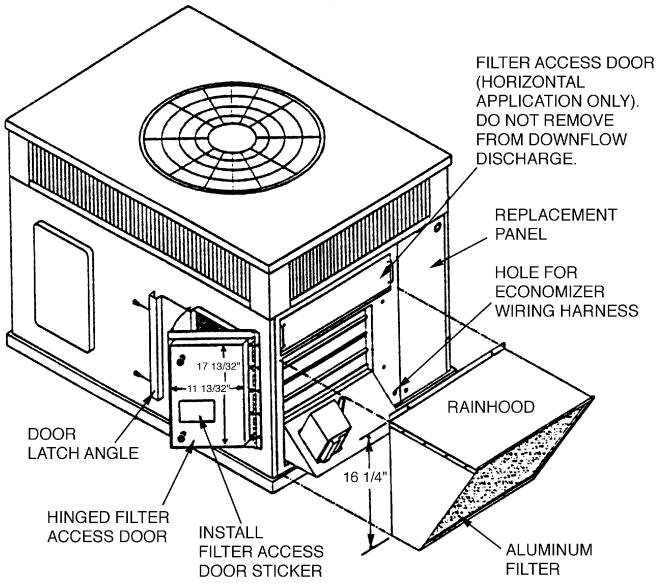
LEGEND
ODS — Order Distribution System
NOTE: Electric heaters are rated at 240 v and 480 v. Refer to Multiplication Factors table for other voltages.

MINIMUM AIRFLOW FOR RELIABLE ELECTRIC HEATER OPERATION

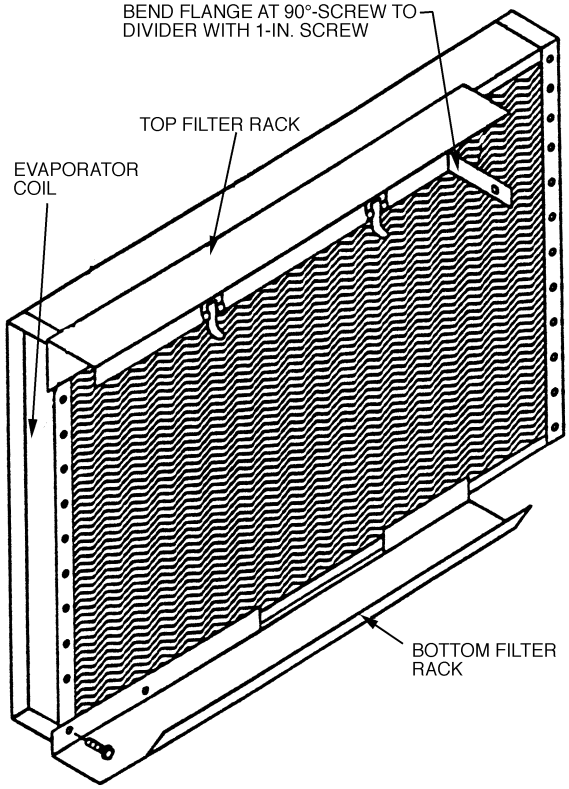
UNIT	024	030	036	042	048	060
AIRFLOW	750	750	1250	1205	1500	1800

ECONOMIZER

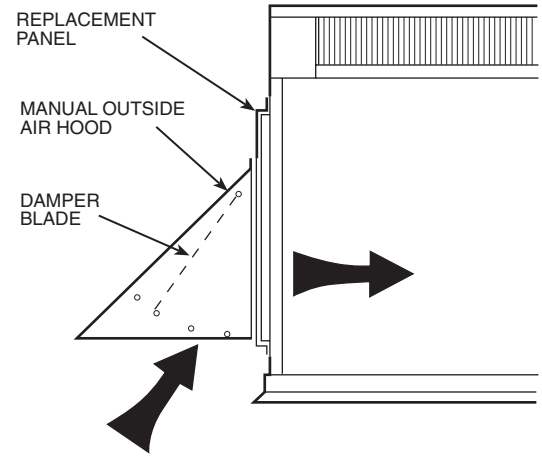




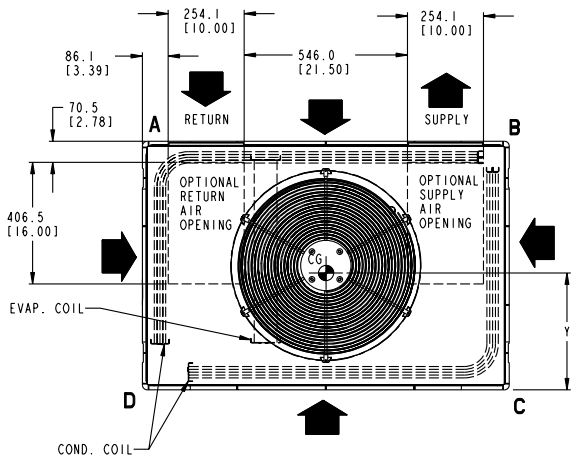
FILTER RACK



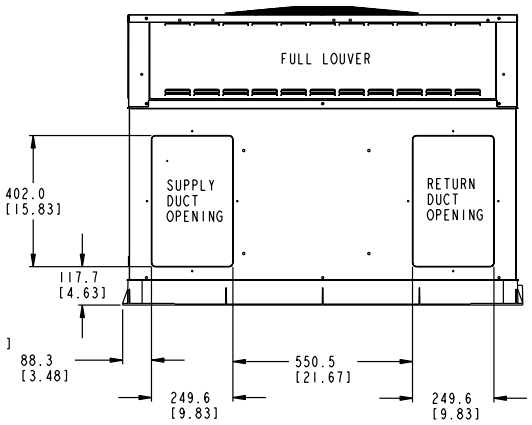
MANUAL OUTSIDE AIR DAMPER



Base unit dimensions—50GL024-036



TOP VIEW



REAR VIEW

REQUIRED CLEARANCES TO COMBUSTIBLE MATL.

	MILLIMETERS [IN]
TOP OF UNIT	355.6 [14.00]
DUCT SIDE OF UNIT	50.8 [2.00]
SIDE OPPOSITE DUCTS	355.6 [14.00]
BOTTOM OF UNIT	12.7 [0.50]
ELECTRIC HEAT PANEL	914.4 [36.00]

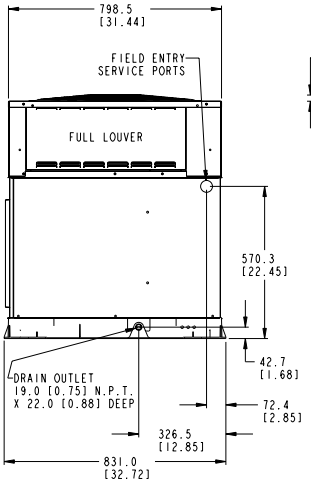
NEC. REQUIRED CLEARANCES.

	MILLIMETERS [IN]
BETWEEN UNITS, POWER ENTRY SIDE	1066.8 [42.00]
UNIT AND UNGROUNDED SURFACES, POWER ENTRY SIDE	914.0 [36.00]
UNIT AND BLOCK OR CONCRETE WALLS AND OTHER GROUNDED SURFACES, POWER ENTRY SIDE	1066.8 [42.00]

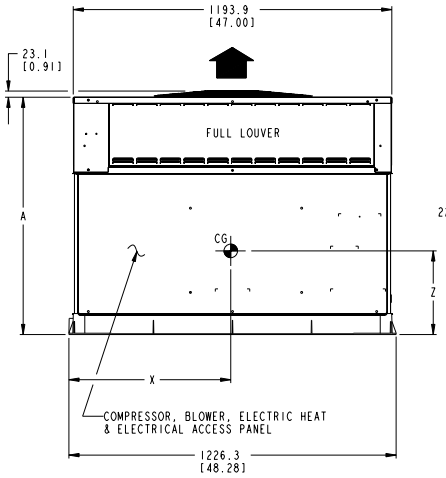
REQUIRED CLEARANCE FOR OPERATION AND SERVICING

	MILLIMETERS [IN]
EVAP. COIL ACCESS SIDE	914.0 [36.00]
POWER ENTRY SIDE	914.0 [36.00]
(EXCEPT FOR NEC REQUIREMENTS)	
UNIT TOP	914.0 [36.00]
SIDE OPPOSITE DUCTS	914.0 [36.00]
DUCT PANEL	304.8 [12.00]*

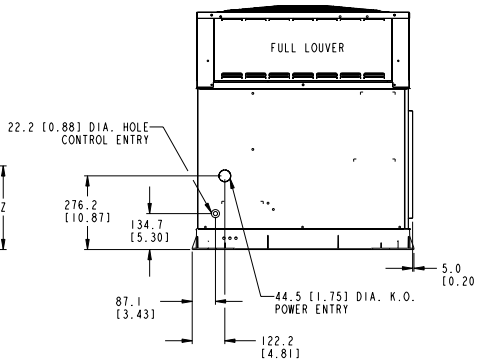
*MINIMUM DISTANCES: IF UNIT IS PLACED LESS THAN 304.8 [12.00] FROM WALL SYSTEM, THEN SYSTEM PERFORMANCE MAYBE COMPROMISED.



LEFT SIDE VIEW



FRONT VIEW

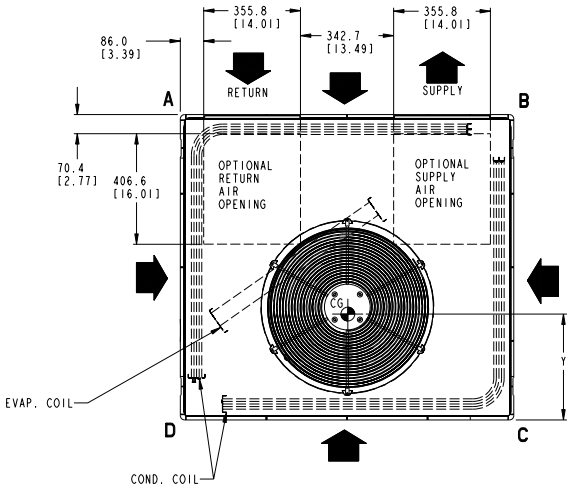


RIGHT SIDE VIEW

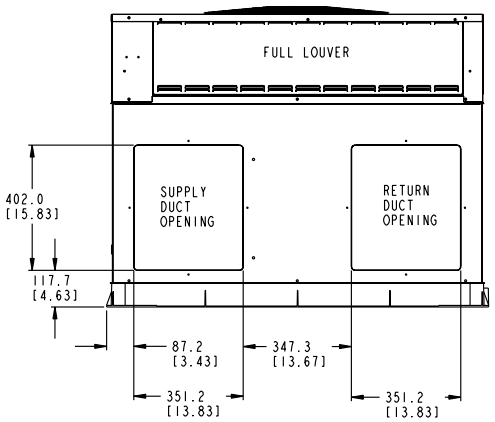
UNIT	ELECTRICAL CHARACTERISTICS	UNIT WEIGHT		UNIT HEIGHT in. [mm] "A"	CENTER OF GRAVITY in. [mm]		
		lb	kg		X	Y	Z
50GL024	208/230-1-60	270	122.5	37.02 [940.3]	18.5 [469.9]	14.5 [368.3]	16.0 [406.4]
50GL030	208/230-1-60, 208/230-3-60	291	132.0	39.02 [991.1]	19.5 [495.3]	15.5 [393.7]	17.6 [447.0]
50GL036	208/230-1-60, 208/230-3-60, 460-3-60	299	135.6	35.02 [889.5]	19.5 [495.3]	15.3 [387.4]	16.5 [419.1]

50GL 024-036 Dimensions

Base unit dimensions—50GL042-060



TOP VIEW



REAR VIEW

REQUIRED CLEARANCES TO COMBUSTIBLE MATL.

	MILLIMETERS [IN]
TOP OF UNIT	355.6 [14.00]
DUCT SIDE OF UNIT	50.8 [2.00]
SIDE OPPOSITE DUCTS	355.6 [14.00]
BOTTOM OF UNIT	12.7 [0.50]
ELECTRIC HEAT PANEL	914.4 [36.00]

NEC. REQUIRED CLEARANCES.

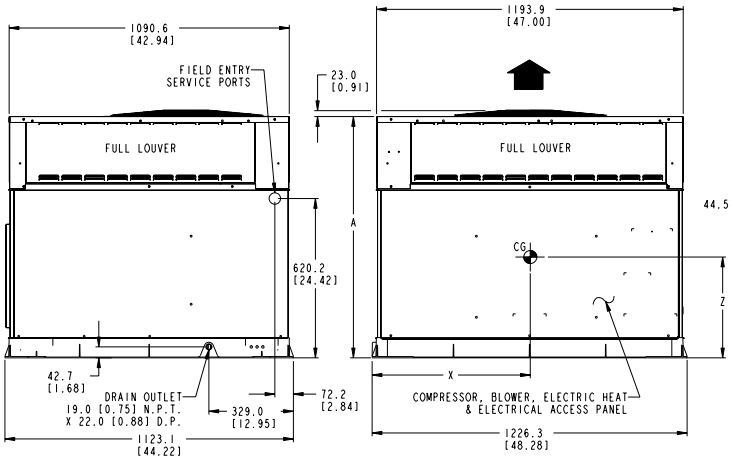
	MILLIMETERS [IN]
BETWEEN UNITS, POWER ENTRY SIDE	1066.8 [42.00]
UNIT AND UNGROUNDED SURFACES, POWER ENTRY SIDE	914.0 [36.00]
UNIT AND BLOCK OR CONCRETE WALLS AND OTHER GROUNDED SURFACES, POWER ENTRY SIDE	1066.8 [42.00]

REQUIRED CLEARANCE FOR OPERATION AND SERVICING

	MILLIMETERS [IN]
EVAP. COIL ACCESS SIDE	914.0 [36.00]
POWER ENTRY SIDE	914.0 [36.00]
(EXCEPT FOR NEC REQUIREMENTS)	
UNIT TOP	914.0 [36.00]
SIDE OPPOSITE DUCTS	914.0 [36.00]
DUCT PANEL	304.8 [12.00]*

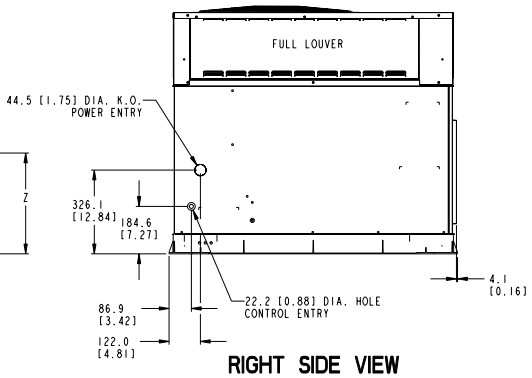
*MINIMUM DISTANCES: IF UNIT IS PLACED LESS THAN 304.8 [12.00] FROM WALL SYSTEM, THEN SYSTEM PERFORMANCE MAYBE COMPROMISED.

DIMENSIONS IN [] ARE IN INCHES



LEFT SIDE VIEW

FRONT VIEW



RIGHT SIDE VIEW

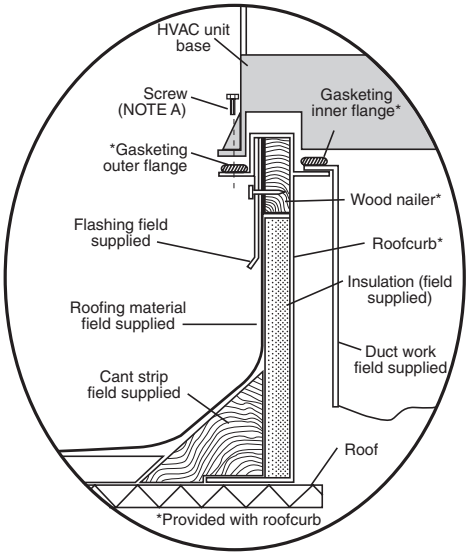
UNIT	ELECTRICAL CHARACTERISTICS	UNIT WEIGHT		UNIT HEIGHT in. [mm] "A"	CENTER OF GRAVITY in. [mm]		
		lb	kg		X	Y	Z
50GL042	208/230-1-60, 208/230-3-60, 460-3-60	321	146	38.98 [990.2]	20.5 [520.7]	16.8 [425.5]	16.6 [421.6]
50GL048	208-230-1-60, 208/230-3/60, 460-3-60	326	148	38.98 [990.2]	19.5 [495.3]	17.6 [447.6]	18.0 [457.2]
50GL060	208/230-1-60, 208/230-3-60, 460-3-60	399	181	42.98 [1091.7]	20.5 [520.7]	16.2 [412.8]	17.6 [447.0]

50GL 042-060 Dimensions

Accessory dimensions

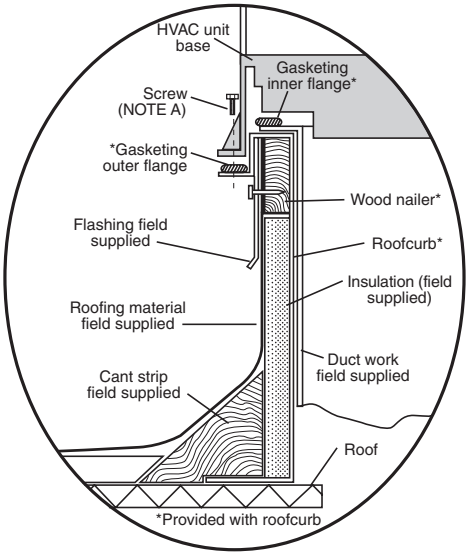
UNIT SIZE	ODS CATALOG NUMBER	A in. [mm]	B in. [mm]	C in. [mm]	D in. [mm]
50GL024-036	CPRFCURB006A00	8 [203]	11 [279]	16-1/2 [419]	28-3/4 [730]
	CPRFCURB007A00	14 [356]	11 [279]	16-1/2 [419]	28-3/4 [730]
50GL042-060	CPRFCURB008A00	8 [203]	16-3/16 [411]	17-3/8 [441]	40-1/4 [1022]
	CPRFCURB009A00	14 [356]	16-3/16 [411]	17-3/8 [441]	40-1/4 [1022]

NOTES:
1. Roof curb must be set up for unit being installed.
2. Seal strip must be applied, as required, to unit being installed.
3. Dimensions in [ ] are in millimeters.
4. Roof curb is made of 16-gage steel.
5. Table lists only the dimensions, per part number, that have changed.
6. Attach ductwork to curb (flanges of duct rest on curb).
7. Insulated panels: 1-in. thick fiberglass 1 lb density.
8. Dimensions are in inches.
9. When unit mounting screw is used (see Note A), a retainer bracket must be used as well. This bracket must also be used when required by code for hurricane or seismic conditions. This bracket is available through Micrometl.



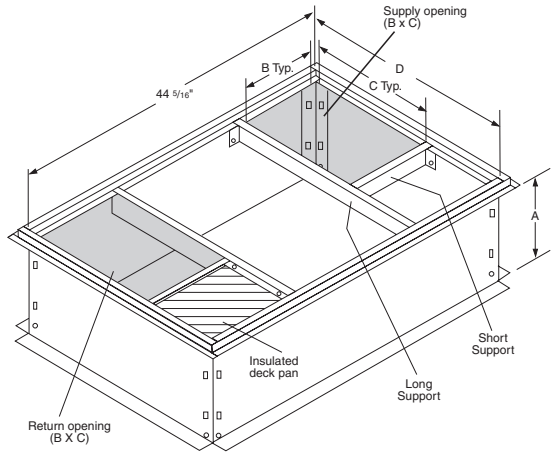
Roof Curb for Small Cabinet

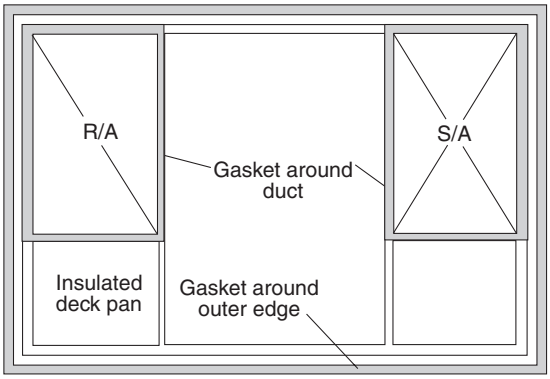
Note A: When unit mounting screw is used, retainer bracket must also be used.



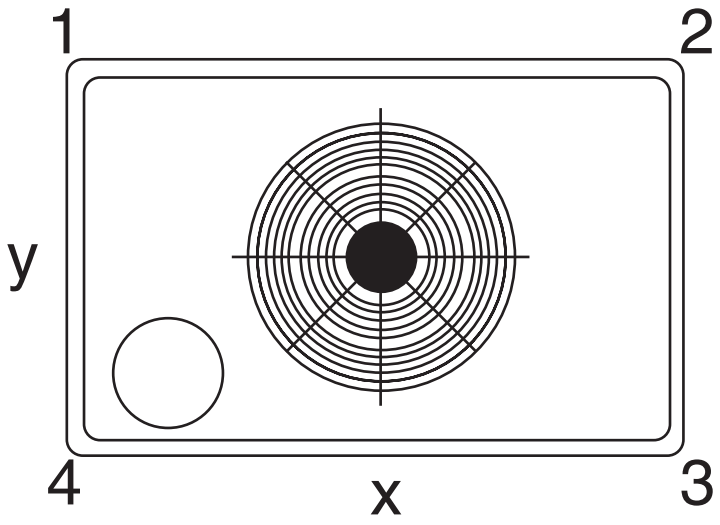
Roof Curb for Large Cabinet

Note A: When unit mounting screw is used, retainer bracket must also be used.





50GL Corner weights (In Pounds)



	Small Base			Large Base		
Model 50GL	**024**	**030**	**036**	**042**	**048**	**060**
Corner Weight #1	76	84	85	71	78	85
Corner Weight #2	49	60	60	55	56	66
Corner Weight #3	57	61	64	85	80	108
Corner Weight #4	88	86	90	110	112	140
Total Weight	270	291	299	321	326	399

Selection Procedure

I Determine cooling and heating requirements at design conditions:

Given:

Required Cooling Capacity (TC). . . . . 33,500 Btuh
Sensible Heat Capacity (SHC). . . . . 24,500 Btuh
Required Heating Capacity . . . . . 15,000 Btuh
Condenser Entering Air Temperature . . . . . 95°F
Indoor-Air Temperature. . . . . 80°F edb, 67°F ewb
Evaporator Air Quantity . . . . . 1200 cfm
External Static Pressure . . . . . 0.2 in. wg
Electrical Characteristics 230-1-60

II Select unit based on required cooling capacity.

Enter Cooling Capacities table at condenser entering temperature of 95°F. The 50GL036 unit at 1200 cfm and 67°F ewb (entering wet bulb) will provide a total capacity of 35,000 Btuh and a SHC of 26,000 Btuh. Calculate SHC correction, if required, using Note 4 under Cooling Capacities tables.

III Select electric heat.

The required heating capacity is 15,000 Btuh (given). Determine the electric heat capacity in kW.

$$\frac{15{,}000 \text{ Btuh}}{3414 \text{ Btuh/kW}} = 4.4 \text{ kW of heat required}$$

Enter the Electric Heater Packages table for 208/240, single-phase, 50GL036 unit. The 5-kW heater at 240v most closely satisfies the heating required. To calculate kW at 208v, multiply the heater kW by multiplication factor 0.75 found in the Wattage Multiplication Factors table.

5 kW x 0.75 = 3.75 kW
3.75 kW x 3414 Btuh/kW = 12,802.50 Btuh

IV Determine fan speed and power requirements at design conditions.

Before entering the air delivery tables, calculate the total static pressure required. From the given, Filter Pressure Drop table, and the Accessory Electric Heat Pressure Drop table, find:

External static pressure	0.200 in. wg
Filter	0.130 in. wg
Total static pressure	0.330 in. wg

Enter the table for Wet Coil Air Delivery — (230 and 460 V.) At 0.33 in. wg external static pressure and low speed, the motor delivers 1228 cfm, and 440 watts.

V Select unit that corresponds to power source available.

The Electrical Data table shows that the unit is designed to operate at 208/230-1-60.

Performance data-Standard PSC Indoor Motor

COOLING CAPACITIES

50GL024 COOLING PERFORMANCE TABLE

Temp (F) Outdoor Air Entering Condenser		Evaporator Air—CFM/BF								
		600/0.08			800/0.10			1000/0.12		
		Evaporator Air — Ewb (F)								
		62	67	72	62	67	72	62	67	72
75	TC	23.7	26.0	28.1	24.7	26.9	28.7	25.2	26.9	28.7
	SHC	19.6	16.8	13.9	22.3	18.6	14.5	24.4	19.7	14.9
	kW	1.74	1.76	1.78	1.88	1.90	1.91	2.04	2.09	2.11
85	TC	22.4	25.0	27.2	23.6	25.8	27.7	24.1	25.9	27.5
	SHC	18.9	16.3	13.4	21.8	18.2	14.2	24.1	19.4	14.6
	kW	1.91	1.96	1.97	2.07	2.09	2.11	2.22	2.29	2.30
95	TC	21.2	23.7	26.2	22.3	24.0	26.7	23.0	24.7	26.4
	SHC	18.4	15.8	13.0	21.1	17.3	13.8	23.0	19.0	14.1
	kW	2.11	2.17	2.21	2.25	2.25	2.35	2.40	2.52	2.52
105	TC	19.1	21.5	23.8	20.1	22.3	24.2	21.0	22.3	24.1
	SHC	17.1	14.6	12.0	19.5	16.4	12.8	21.0	17.8	13.1
	kW	2.37	2.45	2.47	2.52	2.61	2.61	2.68	2.81	2.81
115	TC	16.9	19.3	21.8	18.2	20.0	22.3	19.2	20.1	22.1
	SHC	15.9	13.5	11.1	18.2	15.4	11.9	19.2	16.8	12.6
	kW	2.73	2.82	2.89	2.88	3.01	3.02	3.07	3.21	3.23
125	TC	14.7	16.8	19.2	16.1	17.4	19.6	16.9	17.5	19.4
	SHC	14.7	12.5	10.2	16.1	14.2	11.1	16.9	15.7	11.6
	kW	3.16	3.28	3.38	3.34	3.46	3.51	3.54	3.68	3.72

50GL030 COOLING PERFORMANCE TABLE

Temp (F) Outdoor Air Entering Condenser		Evaporator Air—CFM/BF								
		750/0.08			1000/0.11			1250/0.15		
		Evaporator Air — Ewb (F)								
		62	67	72	62	67	72	62	67	72
75	TC	29.0	32.2	34.3	30.4	32.8	34.6	31.1	32.6	34.2
	SHC	25.2	21.5	17.2	29.0	23.5	18.0	31.1	24.7	18.1
	kW	2.11	2.14	2.15	2.28	2.32	2.33	2.46	2.58	2.59
85	TC	27.5	30.7	33.3	28.7	31.7	33.4	29.8	31.5	33.3
	SHC	24.5	20.9	16.8	28.1	23.3	17.6	29.8	24.4	18.0
	kW	2.34	2.38	2.44	2.52	2.60	2.62	2.68	2.87	2.84
95	TC	25.9	29.4	31.9	27.5	29.0	32.3	28.5	29.8	31.9
	SHC	23.7	20.4	16.3	27.5	21.9	17.2	28.5	24.3	17.7
	kW	2.58	2.65	2.67	2.78	2.75	2.85	2.95	3.09	3.12
105	TC	23.3	26.2	29.1	24.8	27.0	29.4	25.9	27.0	29.1
	SHC	22.0	18.7	15.1	24.8	21.1	16.0	25.9	22.9	16.4
	kW	2.90	3.00	3.01	3.07	3.19	3.20	3.31	3.43	3.47
115	TC	21.5	24.4	26.9	23.1	24.9	27.5	24.2	24.8	26.8
	SHC	21.2	17.9	14.2	23.1	20.2	15.2	24.2	22.0	15.7
	kW	3.14	3.28	3.33	3.39	3.49	3.48	3.62	3.74	3.79
125	TC	19.7	22.2	24.7	21.4	22.7	24.8	22.3	22.5	24.6
	SHC	19.7	16.8	13.4	21.4	19.2	14.3	22.3	21.0	14.8
	kW	3.55	3.69	3.70	3.78	3.86	3.89	4.00	4.10	4.10

See Legend and Notes on page 13.

Performance data (cont)-Standard PSC Indoor Motor

COOLING CAPACITIES

50GL036 COOLING PERFORMANCE TABLE

Temp (F) Outdoor Air Entering Condenser		Evaporator Air—CFM/BF								
		900/0.09			1200/0.13			1500/0.18		
		Evaporator Air — Ewb (F)								
		62	67	72	62	67	72	62	67	72
75	TC	35.2	38.7	41.6	36.6	39.8	41.9	37.3	39.5	41.5
	SHC	30.3	25.5	20.7	34.0	28.0	21.6	37.3	29.3	21.6
	kW	2.58	2.61	2.61	2.79	2.84	2.83	3.03	3.14	3.14
85	TC	32.9	36.9	39.9	34.8	37.9	40.2	35.5	37.7	39.8
	SHC	28.7	24.8	20.1	33.3	27.4	21.0	35.5	28.8	21.1
	kW	2.83	2.88	2.89	3.05	3.11	3.12	3.28	3.43	3.43
95	TC	31.0	34.9	37.9	32.4	35.0	38.3	33.8	35.7	37.8
	SHC	27.9	24.0	19.3	30.8	26.0	20.3	33.8	28.0	20.5
	kW	3.11	3.19	3.20	3.33	3.33	3.43	3.56	3.74	3.73
105	TC	27.9	31.5	34.3	29.3	32.2	34.6	30.7	32.0	34.0
	SHC	26.0	22.2	17.7	28.3	24.8	18.6	30.7	26.5	18.7
	kW	3.49	3.59	3.60	3.73	3.82	3.82	3.97	4.15	4.13
115	TC	25.5	28.8	31.4	27.5	29.4	31.5	28.3	29.2	31.0
	SHC	24.7	21.0	16.5	27.5	23.4	17.5	28.3	25.2	17.6
	kW	3.85	3.96	3.96	4.07	4.19	4.19	4.34	4.46	4.51
125	TC	22.2	24.6	27.0	24.0	25.0	27.0	24.5	24.8	26.3
	SHC	22.2	19.1	14.8	24.0	21.5	15.8	24.5	23.0	15.8
	kW	4.48	4.59	4.61	4.71	4.79	4.84	4.98	5.09	5.15

50GL042 COOLING PERFORMANCE TABLE

Temp (F) Outdoor Air Entering Condenser		Evaporator Air—CFM/BF								
		1050/0.10			1500/0.13			1750/0.17		
		Evaporator Air — Ewb (F)								
		62	67	72	62	67	72	62	67	72
75	TC	40.9	44.6	48.1	42.3	45.8	49.1	43.1	45.9	48.8
	SHC	35.2	29.5	23.4	39.8	32.4	24.6	43.1	34.4	25.1
	kW	2.93	2.97	2.99	3.20	3.27	3.30	3.48	3.70	3.72
85	TC	38.8	42.7	46.3	40.4	43.8	47.1	41.5	43.9	46.9
	SHC	34.2	28.7	22.8	39.0	31.7	24.0	41.5	33.8	24.5
	kW	3.26	3.31	3.35	3.53	3.62	3.66	3.76	4.04	4.07
95	TC	36.5	40.7	44.2	38.1	41.0	45.0	39.8	41.6	44.7
	SHC	33.1	27.8	22.0	38.1	30.4	23.3	39.8	33.0	23.9
	kW	3.60	3.70	3.73	3.87	3.94	4.03	4.15	4.43	4.45
105	TC	31.9	35.8	39.4	33.9	36.8	40.0	35.5	36.5	39.8
	SHC	30.3	25.3	20.0	33.9	28.5	21.3	35.5	30.7	22.1
	kW	4.26	4.42	4.46	4.50	4.75	4.78	4.91	5.17	5.21
115	TC	28.6	32.0	35.6	30.8	32.9	36.0	32.2	32.7	35.5
	SHC	28.6	23.6	18.6	30.8	26.9	20.0	32.2	29.1	20.6
	kW	4.92	5.10	5.18	5.06	5.47	5.49	5.63	5.84	5.94
125	TC	25.3	28.4	32.0	27.8	29.1	32.1	29.0	28.9	31.3
	SHC	26.6	21.8	17.1	27.8	25.1	18.5	29.0	27.2	19.0
	kW	5.62	5.84	5.97	5.66	6.24	6.26	6.41	6.57	6.73

See Legend and Notes on page 13.

Performance data (cont)-Standard PSC Indoor Motor

COOLING CAPACITIES

50GL048 COOLING PERFORMANCE TABLE

Temp (F) Outdoor Air Entering Condenser		Evaporator Air—CFM/BF								
		1200/0.06			1600/0.08			2000/0.11		
		Evaporator Air — Ewb (F)								
		62	67	72	62	67	72	62	67	72
75	TC	47.9	52.3	56.8	49.6	53.7	58.1	50.5	54.0	57.7
	SHC	41.5	34.8	28.2	47.4	38.7	29.9	50.5	41.6	30.7
	kW	3.38	3.43	3.48	3.68	3.78	3.82	4.01	4.23	4.27
85	TC	45.7	50.2	54.7	47.5	51.6	56.1	48.9	51.6	56.0
	SHC	40.4	34.1	27.4	46.5	37.9	29.3	48.9	40.9	30.3
	kW	3.77	3.80	3.86	4.03	4.16	4.21	4.36	4.63	4.68
95	TC	43.3	47.9	52.3	45.3	48.0	53.7	47.0	48.9	53.5
	SHC	39.1	33.1	26.5	45.3	36.2	28.5	47.0	39.9	29.5
	kW	4.15	4.23	4.28	4.41	4.46	4.63	4.78	5.07	5.11
105	TC	39.2	43.7	47.9	41.5	44.6	48.9	42.9	44.3	48.9
	SHC	36.4	30.8	24.6	41.5	34.6	26.4	42.9	37.5	27.6
	kW	4.67	4.79	4.82	4.93	5.14	5.19	5.34	5.60	5.66
115	TC	35.3	39.6	43.7	38.2	40.3	44.3	39.3	40.1	44.0
	SHC	34.4	29.0	23.0	38.2	32.8	24.7	39.3	35.7	26.0
	kW	5.32	5.50	5.54	5.65	5.85	5.89	6.06	6.27	6.36
125	TC	32.0	35.2	38.7	34.4	35.5	39.3	35.0	35.2	38.8
	SHC	32.0	27.0	21.0	34.4	30.8	22.8	35.0	33.4	24.0
	kW	6.16	6.31	6.34	6.47	6.63	6.69	6.89	7.04	7.16

50GL060 COOLING PERFORMANCE TABLE

Temp (F) Outdoor Air Entering Condenser		Evaporator Air—CFM/BF											
		1500/0.05			1750/0.06			2000/0.07			2500/0.08		
		Evaporator Air — Ewb (F)											
		62	67	72	62	67	72	62	67	72	62	67	72
75	TC	57.6	64.3	69.9	59.8	66.1	71.7	61.7	67.6	73.1	65.0	69.6	75.1
	SHC	50.6	43.0	34.4	55.5	46.2	36.3	59.8	49.3	38.1	65.0	54.8	41.3
	kW	4.63	4.69	4.75	4.67	4.71	4.78	4.68	4.73	4.80	4.70	4.75	4.84
85	TC	54.4	60.9	67.0	56.4	63.0	68.6	58.0	64.5	69.9	62.3	66.4	71.6
	SHC	49.0	41.6	33.4	53.6	45.0	35.2	58.0	48.2	37.0	62.3	54.0	40.2
	kW	5.06	5.17	5.21	5.10	5.17	5.23	5.14	5.18	5.26	5.17	5.21	5.29
95	TC	51.2	57.5	63.7	53.1	59.0	65.3	55.1	60.7	66.5	59.3	62.7	68.1
	SHC	47.5	40.0	32.2	51.9	43.2	34.0	55.1	46.8	35.8	59.3	52.8	39.1
	kW	5.54	5.68	5.72	5.58	5.64	5.74	5.64	5.69	5.76	5.68	5.71	5.79
105	TC	45.8	51.9	57.7	47.8	53.4	59.1	50.2	54.6	60.1	53.8	56.2	61.4
	SHC	44.0	37.0	29.5	47.8	40.3	31.4	50.2	43.4	33.1	53.8	49.3	36.2
	kW	6.17	6.35	6.39	6.23	6.36	6.41	6.30	6.37	6.42	6.36	6.38	6.44
115	TC	41.9	47.6	53.2	44.5	49.0	54.4	46.8	50.1	55.2	50.0	51.6	56.5
	SHC	41.9	35.1	27.8	44.5	38.3	29.6	46.8	41.5	31.3	50.0	47.1	34.5
	kW	6.75	6.94	6.98	6.83	6.95	6.99	6.82	6.95	7.01	6.94	6.95	7.03
125	TC	38.6	43.2	48.3	41.1	44.5	49.4	43.1	45.4	50.0	46.0	46.7	51.0
	SHC	38.6	33.2	25.8	41.1	36.3	27.6	43.1	39.3	29.1	46.0	44.5	32.1
	kW	7.36	7.64	7.67	7.58	7.64	7.68	7.63	7.64	7.69	7.64	7.65	7.71

LEGEND

BF — Bypass Factor
Ewb — Entering Wet-Bulb
kW — Total Unit Power Input
SHC — Sensible Heat Capacity (1000 Btuh)
TC — Cooling Capacity (1000 Btuh)
PSC — Permanent Split Capacitor

NOTES:

1. Ratings are net; they do account for the effects of the evaporator-fan motor power and heat.
2. Direct interpolation is permissible. Do not extrapolate.
3. The following formulas may be used:

$$t_{ldb} = t_{edb} - \frac{\text{sensible capacity (Btuh)}}{1.10 \times \text{cfm}}$$

t_{lwb} = Wet-bulb temperature corresponding to enthalpy of air leaving evaporator coil (h_{lwb})

$$h_{lwb} = h_{ewb} - \frac{\text{total capacity (Btuh)}}{4.5 \times \text{cfm}}$$

Where: h_{ewb} = Enthalpy of air entering evaporator coil

4. The SHC is based on 80°F Edb (Entering dry bulb) air temperature through Evaporator coil. Below 80°F Edb, subtract (Correction Factor x CFM) from SHC. Above 80°F Edb, add (Correction Factor x CFM) to SHC. Correction Factor = 1.10 x (1 + BF) x (Edb + 8)

Performance data (cont)

ECONOMIZER 1-in. FILTER PRESSURE DROP (in. wg)

UNIT50GL	PRESSURE DROP
024-036	0.20
042-060	0.25

MULTIPLICATION FACTORS

HEATER kW RATING	VOLTAGE DISTRIBUTION	MULTIPLICATION FACTOR
240	200 208 230 240	.69 .75 .92 1.00
480	440 460 480	.84 .92 1.00

Example: 15.0 kW (at 240v) heater on 208 v
= 15.0 (.75 mult factor)
= 11.25 capacity at 208 v

FILTER PRESSURE DROP (In. wg)

FILTER SIZE	CFM																		
	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
20 X 20 X 1	0.05	0.07	0.08	0.10	0.12	0.13	0.14	0.15	—	—	—	—	—	—	—	—	—	—	—
20 X 24 X 1	—	—	—	—	0.09	0.10	0.11	0.13	0.14	0.15	0.16	—	—	—	—	—	—	—	—
24 X 30 X 1	—	—	—	—	—	—	—	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.18

ELECTRIC HEAT PRESSURE DROP TABLES

Small Cabinet: 024-036

STATIC	CFM											
	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600
5 Kw	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.06	0.07
7.5 Kw	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.05	0.07	0.08	0.09
10 Kw	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.06	0.07	0.09	0.10	0.11
15 Kw	0.00	0.00	0.00	0.02	0.04	0.06	0.08	0.10	0.12	0.14	0.16	0.18

Large Cabinet: 042-060

STATIC	CFM														
	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
5 Kw	0.00	0.00	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12
7.5 Kw	0.00	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13
10 Kw	0.00	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13
15 Kw	0.00	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15
20 Kw	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.16

WET COIL DELIVERY—STANDARD 50GL UNIT 024-060

230 AND 460 VOLT

Unit 50GL	Motor Speed		External Static Pressure (in.wg)										
			0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
024	Low	Watts	281	282	281	278	276	—	—	—	—	—	—
		Cfm	833	776	702	638	554						
	Med	Watts	—	—	—	375	370	363	357	352	—	—	—
		Cfm	—	—	—	894	800	754	636	518	—	—	—
	High	Watts	—	—	—	—	—	468	457	444	431	423	—
		Cfm	—	—	—	—	—	884	802	697	467	397	—
030	Low	Watts	246	244	243	241	—	—	—	—	—	—	—
		Cfm	910	806	749	680	—	—	—	—	—	—	—
	Med	Watts	343	339	336	332	328	322	317	—	—	—	—
		Cfm	1148	1104	1028	958	850	782	645	—	—	—	—
	High	Watts	—	—	—	—	441	432	421	410	400	—	—
		Cfm	—	—	—	—	1102	988	896	783	529	—	—
036	Low	Watts	—	470	458	445	430	415	399	384	—	—	—
		Cfm	—	1350	1257	1240	1199	1107	1015	924	—	—	—
	Med	Watts	—	—	514	501	487	471	455	438	422	—	—
		Cfm	—	—	1338	1295	1288	1181	1111	968	813	—	—
	High	Watts	—	—	—	646	636	626	614	602	589	—	—
		Cfm	—	—	—	1385	1268	1196	1159	1032	948	—	—
042	Low	Watts	—	625	614	605	593	574	549	518	485	454	—
		Cfm	—	1540	1510	1473	1396	1348	1288	1192	1124	1037	—
	Med	Watts	—	—	—	—	726	695	661	625	591	561	540
		Cfm	—	—	—	—	1648	1593	1530	1446	1352	1237	1114
	High	Watts	—	—	—	—	—	—	—	790	766	742	713
		Cfm	—	—	—	—	—	—	—	1616	1492	1394	1283
048	Low	Watts	—	588	577	572	566	556	539	517	491	—	—
		Cfm	—	1514	1543	1467	1408	1374	1324	1237	1161	—	—
	Med	Watts	—	756	738	719	699	676	650	623	596	572	555
		Cfm	—	1785	1765	1706	1628	1577	1503	1421	1357	1298	1253
	High	Watts	—	—	—	—	896	862	829	800	775	752	728
		Cfm	—	—	—	—	1880	1804	1704	1547	1565	1406	1367
060	Low	Watts	903	898	873	842	814	792	777	764	743	701	618
		Cfm	2190	2158	2081	2026	1958	1866	1822	1744	1678	1535	1377
	Med	Watts	—	1002	978	960	941	914	880	839	798	764	750
		Cfm	—	2389	2291	2216	2120	2020	1952	1852	1727	1617	1549
	High	Watts	—	—	—	1080	1080	1066	1041	1008	972	938	—
		Cfm	—	—	—	2316	2181	2122	2101	2000	1802	1672	—

NOTES:

1. Deduct 10% For 208v.
2. Deduct field-supplied air filter pressure drop to obtain external Static pressure available for ducting.
3. Air delivery values are without air filter.
4. Dashes indicate portions of table that are beyond the blower motor capacity or are not recommended.

50GL ICM FIOP DRY COIL AIRFLOW–SMALL CABINET

UNIT SIZE	CFM ADJUST PIN SELECT	LO PIN			NOM PIN			HI PIN		
	EXTERNAL STATIC PRESSURE RANGE	0.0–0.4	0.4–0.7	0.7–1.0	0.0–0.4	0.4–0.7	0.7–1.0	0.0–0.4	0.4–0.7	0.7–1.0
024	COOLING	800	725	—	885	805	730	990	930	855
	COOLING DEHUMIDIFY	715	670	—	715	695	645	795	775	745
030	COOLING	1010	920	825	1105	1030	930	1255	1160	1050
	COOLING DEHUMIDIFY	890	845	795	890	865	825	1010	980	925
036	COOLING	1110	1025	970	1235	1175	1115	1400	1355	1280
	COOLING DEHUMIDIFY	990	960	910	990	975	940	1125	1110	1085

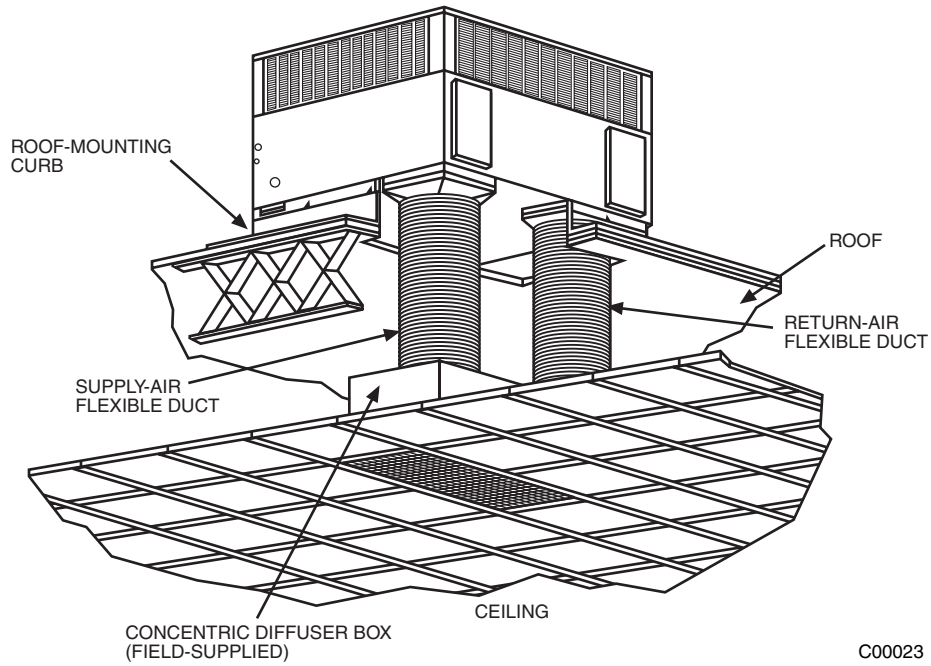
50GL ICM FIOP DRY COIL AIRFLOW–LARGE CABINET

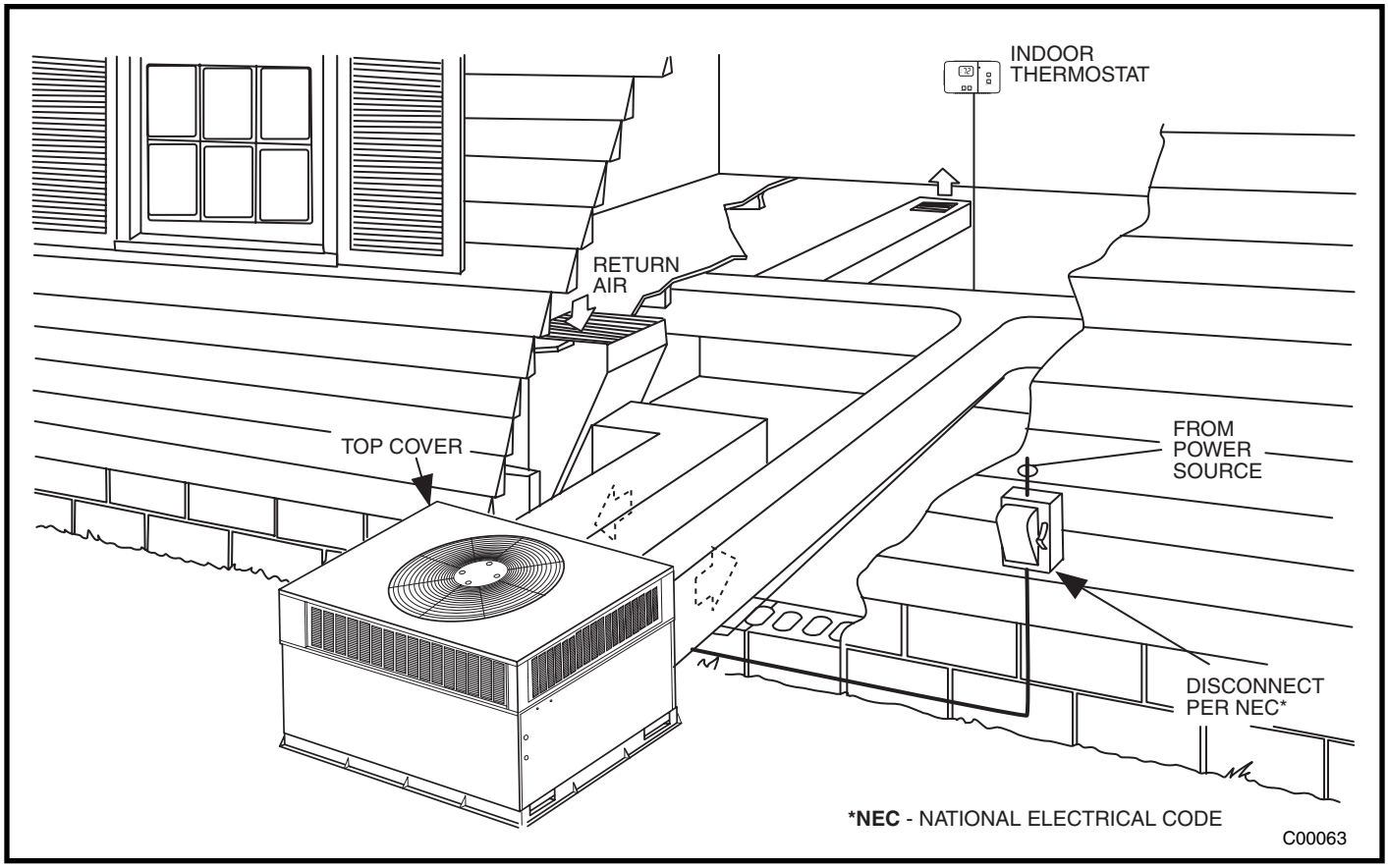
UNIT SIZE	CFM ADJUST PIN SELECT	LO PIN	NOM PIN	HI PIN
	EXTERNAL STATIC PRESSURE RANGE	0.1–1.0	0.1–1.0	0.1–1.0
042	COOLING	1100	1225	1410
	COOLING DEHUMIDIFY	980	980	1125
048	COOLING	1260	1400	1610
	COOLING DEHUMIDIFY	1120	1120	1290
060	COOLING	1575	1750	2010
	COOLING DEHUMIDIFY	1400	1400	1610

50GL ICM FIOP WET COIL PRESSURE DROP

UNIT SIZE	STANDARD CFM															
	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100
024	0.005	0.007	0.010	0.012	0.015	—	—	—	—	—	—	—	—	—	—	—
030	—	0.007	0.010	0.012	0.015	0.018	0.021	0.024	—	—	—	—	—	—	—	—
036	—	—	—	0.019	0.023	0.027	0.032	0.037	0.042	0.047	—	—	—	—	—	—
042	—	—	—	—	0.014	0.017	0.020	0.024	0.027	0.031	0.035	0.039	0.043	—	—	—
048	—	—	—	—	—	—	0.027	0.032	0.036	0.041	0.046	0.052	0.057	0.063	0.068	—
060	—	—	—	—	—	—	—	—	—	0.029	0.032	0.036	0.040	0.045	0.049	0.053

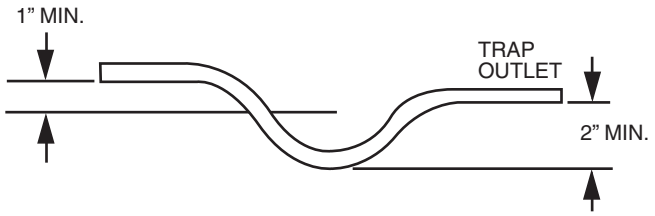
Typical piping and wiring





Application data

Condensate trap — A 2-in. condensate trap must be field supplied.



Ductwork — Secure downflow discharge ductwork to roof curb. For horizontal discharge applications, attach ductwork to unit with flanges.

To convert a unit to downflow discharge — Units are equipped with factory-installed inserts in the downflow openings. Remove the inserts similar to removing an electrical knock-out. Leave on duct covers to seal the horizontal discharge openings in the unit. Units installed in horizontal discharge orientation do not require duct covers.

Maximum cooling airflow — To minimize the possibility of condensate blow-off from the evaporator, airflow through the units should not exceed 450 cfm/ton.

Minimum cooling airflow — The minimum cooling airflow is 350 cfm/ton.

Minimum cooling ambient operating temperature — All standard units have a minimum ambient operating temperature of 40°F. Units with the ICM Indoor Motor FIOP have a minimum cooling outdoor operating temperature of 55°F. With accessory low ambient temperature kit, units can operate at temperatures down to 0°F.

Maximum operating outdoor air temperature — Maximum outdoor operating air temperature for cooling is 125°F.

Electrical data

UNIT SIZE 50GL	V-PH-Hz	VOLTAGE RANGE		COMPRESSOR		OUTDOOR FAN MOTOR	INDOOR FAN MOTOR	ELECTRIC HEAT		POWER SUPPLY		
		Min	Max	RLA	LRA	FLA	FLA	Nominal kW*	FLA	UNIT MCA	MAX FUSE or CKT. BKR.	MOCP
024	208/230-1-60	187	253	13.5	61.0	0.8	2.0	—/—	—/—	19.7/19.7	25/25	—
								3.8/5.0	18.1/20.8	25.1/28.5	25/30	—
								5.4/7.2	25.9/30.0	34.9/40.0	40/50	—
								7.5/10.0	36.1/41.7	47.6/54.6	50/60	—
030	208/230-1-60	187	253	14.7	73.0	0.8	2.1	—/—	—/—	21.3/21.3	25/25	—
								3.8/5.0	18.1/20.8	25.2/28.7	25/30	—
								5.4/7.2	25.9/30.0	35.0/40.1	40/50	—
								7.5/10.0	36.1/41.7	47.8/54.7	50/60	—
	208/230-3-60	187	253	9.6	63.0	0.8	2.1	—/—	—/—	14.9/14.9	20/20	—
								3.8/5.0	10.4/12.0	15.7/17.7	20/20	—
								7.5/10.0	20.8/24.1	28.7/32.7	30/35	—
036	208/230-1-60	187	253	15.4	83.0	0.8	3.6	—/—	—/—	23.7/23.7	30/30	—
								3.8/5.0	18.1/20.8	27.1/30.5	30/30	—
								5.4/7.2	25.9/30.0	36.9/42.0	40/50	—
								7.5/10.0	36.1/41.7	49.6/56.6	50/60	—
								11.3/15.0	54.2/62.5	72.2/82.6	—	80/90
	208/230-3-60	187	253	12.2	77.0	0.8	3.6	—/—	—/—	19.7/19.7	25/25	—
								3.8/5.0	10.4/12.0	19.7/19.7	25/25	—
								7.5/10.0	20.8/24.1	30.6/34.6	35/35	—
								11.3/15.0	31.3/36.1	43.6/49.6	45/50	—
	460-3-60	414	506	5.1	35.0	0.8	1.9	—/—	—/—	9.1	15	—
								5.0	6.0	9.9	15	—
								10.0	12.0	17.4	20	—
								15.0	18.0	24.9	25	—
042	208/230-1-60	187	253	18.6	105.0	0.8	4.1	—/—	—/—	28.2/28.2	35/35	—
								3.8/5.0	18.1/20.8	28.2/31.2	35/35	—
								5.4/7.2	25.9/30.0	37.5/42.6	40/50	—
								7.5/10.0	36.1/41.7	50.3/57.2	60/60	—
								11.3/15.0	54.2/62.5	72.8/83.3	—	80/90
								15.0/20.0	72.2/83.3	95.4/109.3	—	100/110
	208/230-3-60	187	253	13.8	88.0	0.8	4.1	—/—	—/—	22.2/22.2	30/30	—
								3.8/5.0	10.4/12.0	22.2/22.2	30/30	—
								7.5/10.0	20.8/24.1	31.2/35.2	35/40	—
								11.3/15.0	31.3/36.1	44.2/50.2	45/60	—
								15.0/20.0	41.6/48	57.1/65.1	—	60/70
	460-3-60	414	506	6.3	39.0	0.8	2.0	—/—	—/—	10.7	15	—
								5.0	6.0	10.7	15	—
								10.0	12.0	17.5	20	—
								15.0	18.0	25.1	30	—
								20.0	24.1	32.6	35	—
048	208/230-1-60	187	253	20.5	109.0	1.6	4.1	—/—,	—/—	31.3/31.3	40/40	—
								3.8/5.0	18.1/20.8	31.3/31.3	40/40	—
								5.4/7.2	25.9/30.0	37.5/42.6	40/50	—
								7.5/10.0	36.1/41.7	50.3/57.2	60/60	—
								11.3/15.0	54.2/62.5	72.8/83.3	—	80/90
								15.0/20.0	72.2/83.3	95.4/109.3	—	100/110
	208/230-3-60	187	253	14.7	91.0	1.6	4.1	—/—	—/—	24.1/24.1	30/30	—
								3.8/5.0	10.4/12	24.1/24.1	30/30	—
								7.5/10.0	20.8/24.1	31.2/35.2	35/40	—
								11.3/15.0	31.3/36.1	44.2/50.2	45/60	—
								15.0/20.0	41.6/48	57.1/65.1	—	60/70
	460-3-60	414	506	6.5	46.0	0.9	2.0	—/—	—/—	11.0	15	—
								5.0	6.0	11.0	15	—
								10.0	12.0	17.5	20	—
								15.0	18.0	25.1	30	—
								20.0	24.1	32.6	35	—
060	208/230-1-60	187	253	27.6	158.0	1.6	6.2	—/—	—/—	42.3/42.3	50/50	—
								3.8/5.0	18.1/20.8	42.3/42.3	50/50	—
								5.4/7.2	25.9/30.0	40.1/42.6	40/50	—
								7.5/10.0	36.1/41.7	52.9/59.8	60/60	—
								11.3/15.0	54.2/62.5	75.4/85.9	—	80/90
								15.0/20.0	72.2/83.3	98.0/111.9	—	100/125
	208/230-3-60	187	253	18.1	137.0	1.6	6.2	—/—	—/—	30.4/30.4	35/35	—
								3.8/5.0	10.4/12.0	30.4/30.4	35/35	—
								7.5/10.0	20.8/24.1	33.8/37.8	35/40	—
								11.3/15.0	31.3/36.1	46.8/52.9	50/60	—
								15.0/20.0	41.6/48	59.7/67.7	—	60/70
	460-3-60	414	506	9.0	62.0	0.9	3.2	—/—	—/—	15.4	20	—
								5.0	6.0	15.4	20	—
								10.0	12.0	19.0	20	—
								15.0	18.0	26.6	30	—
								20.0	24.1	34.1	35	—

See Legend and Notes on p. 20

50GL WITH ICM FIOP ELECTRICAL DATA

UNIT SIZE 50GL	V-PH-Hz	VOLTAGE RANGE		COMPRESSOR		OUTDOOR FAN MOTOR	INDOOR FAN MOTOR	ELECTRIC HEAT		SINGLE POINT POWER SUPPLY		
		Min	Max	RLA	LRA	FLA	FLA	Nominal kw*	FLA	UNIT MCA	MAX FUSE or CKT. BKR.	MOCP
024	208/230-1-60	187	253	13.5	61.0	0.8	4.3	—/— 3.8/5.0 5.4/7.2 7.5/10.0	—/— 18.1/20.8 25.9/30.0 36.1/41.7	22.2/22.0 27.9/31.4 37.8/42.9 50.5/27.5	30/30 30/35 40/50 60/60	— — — —
030	208/230-1-60	187	253	14.7	73.0	0.8	4.3	—/— 3.8/5.0 5.4/7.2 7.5/10.0	—/— 18.1/20.8 25.9/30.0 36.1/41.7	23.5/23.5 27.9/31.4 37.8/42.9 50.5/57.5	30/30 30/35 40/50 60/60	— — — —
036	208/230-1-60	187	253	16.9	83.0	1.6	6.8	—/— 3.8/5.0 5.4/7.2 7.5/10.0 11.3/15.0	—/— 18.1/20.8 25.9/30.0 36.1/41.7 54.2/62.5	26.9/26.9 31.1/34.5 40.9/46.0 53.6/60.6 76.2/86.6	35/35 35/40 50/50 60/– —	— — — –/70 80/90
042	208/230-1-60	187	253	22.4	105.0	0.9	6.8	—/— 3.8/5.0 5.4/7.2 7.5/10.0 11.3/15.0 15.0/20.0	—/— 18.1/20.8 25.9/30.0 36.1/41.7 54.2/62.5 72.2/83.3	30.9/30.9 31.1/34.5 40.9/46.0 53.6/60.6 76.2/86.6 98.8/112.7	40/10 40/40 50/50 60/– — —	— — — –/70 90/90 100/125
048	208/230-1-60	187	253	20.5	109.0	1.6	6.8	—/— 3.8/5.0 5.4/7.2 7.5/10.0 11.3/15.0 15.0/20.0	—/— 18.1/20.8 25.9/30.0 36.1/41.7 54.2/62.5 72.2/83.3	34.0/34.0 34.0/34.5 40.9/46.0 53.6/60.6 76.2/86.6 98.8/112.7	40/40 40/40 50/50 60/– — —	— — — –/70 90/90 100/125
060	208/230-1-60	187	253	27.6	158.0	1.6	9.1	—/— 3.8/5.0 5.4/7.2 7.5/10.0 11.3/15.0 15.0/20.0	—/— 18.1/20.8 25.9/30.0 36.1/41.7 54.2/62.5 72.2/83.3	45.2/45.2 45.2/45.2 43.8/48.9 56.5/63.5 79.1/89.5 101.6/115.5	60/60 60/60 50/50 60/– — —	— — — –/70 90/90 110/125

LEGEND

FLA — Full Load Amps
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps
MOCP — Maximum Overcurrent Protection
RLA — Rated Load Amps

*Heater capacity (KW) based on heater voltage of 208v, 240v, & 480v. If power distribution voltage to unit varies from rated heater voltage, heater KW will vary accordingly.

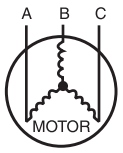
NOTES:

1. In compliance with NEC (National Electrical Code) requirements for multimotor and combination load equipment (refer to NEC Articles 430 and 440), the overcurrent protective device for the unit shall be Power Supply fuse. The CGA (Canadian Gas Association) units may be fuse or circuit breaker.
2. Minimum wire size is based on 60 C copper wire. If other than 60 C wire is used, or if length exceeds wire length in table, determine size from NEC.
3. Unbalanced 3-Phase Supply Voltage
   Never operate a motor where a phase imbalance in supply voltage is greater than 2%. Use the following formula to determine the percentage of voltage imbalance.

   % Voltage imbalance

   $$= 100 \times \frac{\text{max voltage deviation from average voltage}}{\text{average voltage}}$$

EXAMPLE: Supply voltage is 460-3-60.



AB = 452 v
BC = 464 v
AC = 455 v

$$\text{Average Voltage} = \frac{452 + 464 + 455}{3}$$

$$= \frac{1371}{3}$$

$$= 457$$

Determine maximum deviation from average voltage.
(AB) 457 452 = 5 v
(BC) 464 457 = 7 v
(AC) 457 455 = 2 v

Maximum deviation is 7 v.

Determine percent of voltage imbalance.

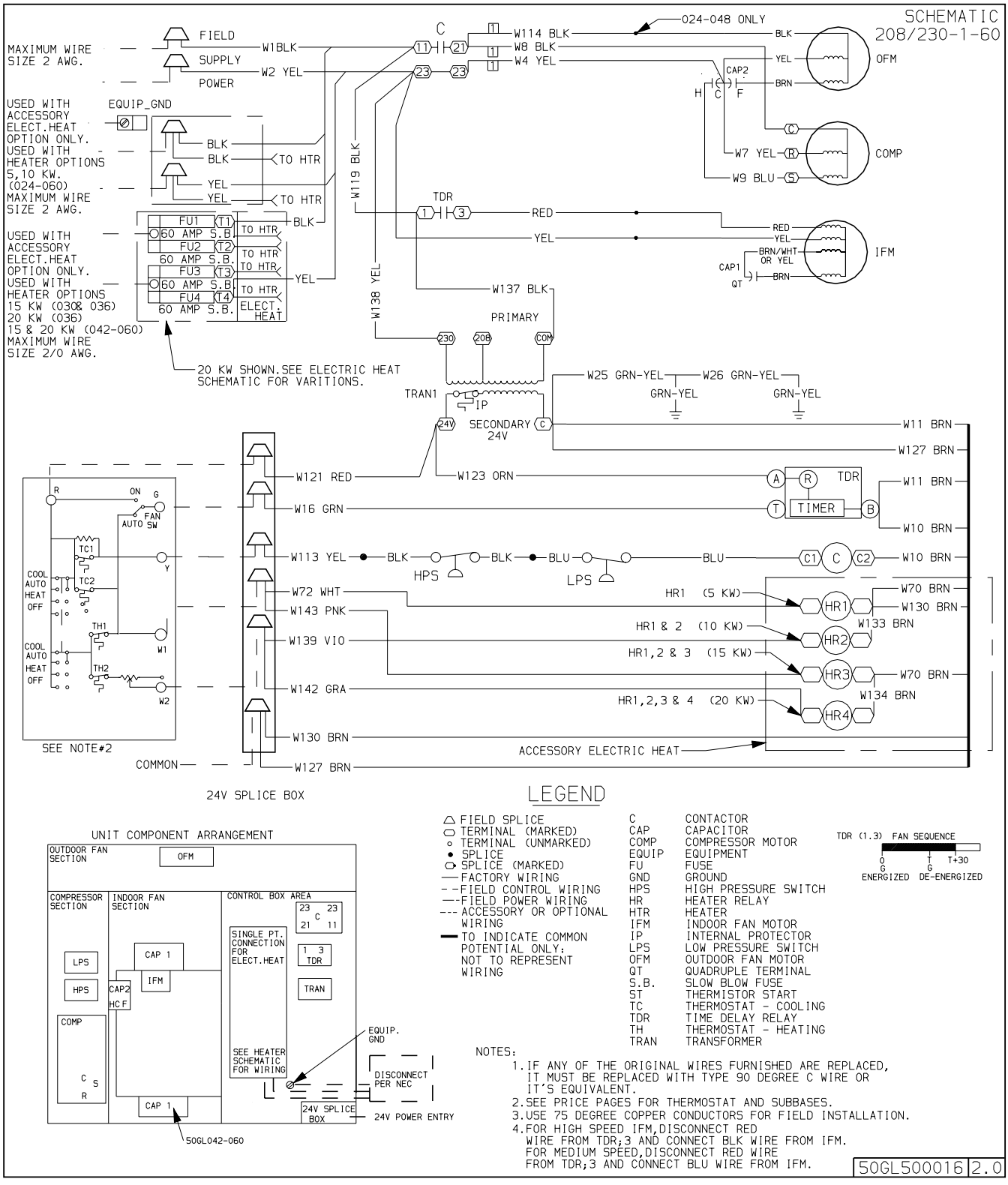
$$\% \text{ Voltage Imbalance} = 100 \times \frac{7}{457}$$

$$= 1.53\%$$

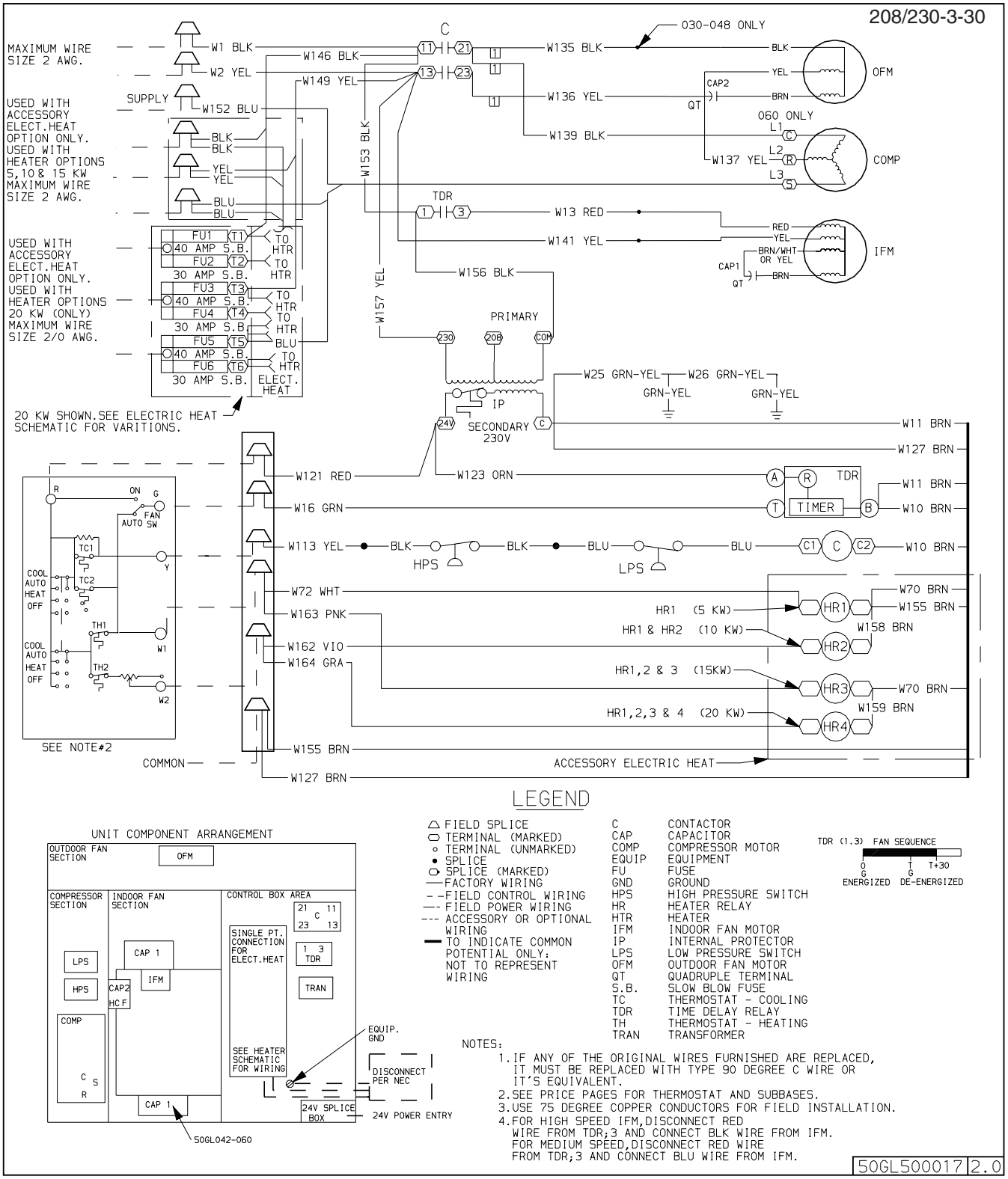
This amount of phase imbalance is satisfactory as it is below the maximum allowable 2%.

IMPORTANT: If the supply voltage phase imbalance is more than 2%, contact your local electric utility company immediately.

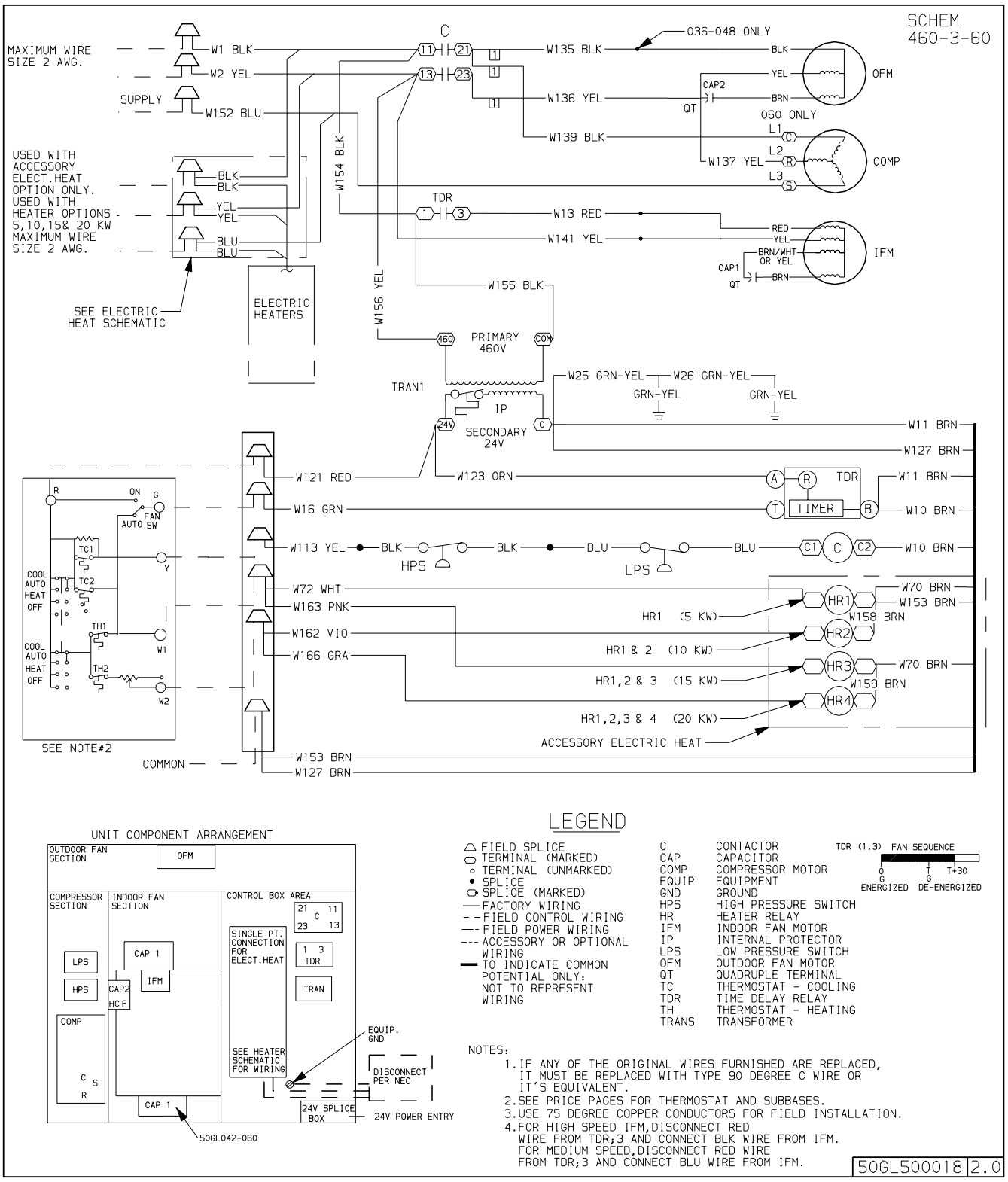
Typical wiring schematic — 208/230-1-60 shown



Typical wiring schematic — 208/230-3-60 shown



Typical wiring schematic — 460-3-60 shown



UNIT COMPONENT ARRANGEMENT

LEGEND

- FIELD SPLICE
- TERMINAL (MARKED)
- TERMINAL (UNMARKED)
- SPLICE
- SPLICE (MARKED)
- FACTORY WIRING
- FIELD CONTROL WIRING
- FIELD POWER WIRING
- ACCESSORY OR OPTIONAL WIRING
- TO INDICATE COMMON POTENTIAL ONLY; NOT TO REPRESENT WIRING

C	CONTACTOR
CAP	CAPACITOR
COMP	COMPRESSOR MOTOR
EQUIP	EQUIPMENT
GND	GROUND
HPS	HIGH PRESSURE SWITCH
HR	HEATER RELAY
IFM	INDOOR FAN MOTOR
IP	INTERNAL PROTECTOR
LPS	LOW PRESSURE SWITCH
OFM	OUTDOOR FAN MOTOR
QT	QUADRUPLE TERMINAL
TC	THERMOSTAT - COOLING
TDR	TIME DELAY RELAY
TH	THERMOSTAT - HEATING
TRANS	TRANSFORMER

TDR (1.3) FAN SEQUENCE

NOTES:

1. IF ANY OF THE ORIGINAL WIRES FURNISHED ARE REPLACED, IT MUST BE REPLACED WITH TYPE 90 DEGREE C WIRE OR IT'S EQUIVALENT.
2. SEE PRICE PAGES FOR THERMOSTAT AND SUBBASES.
3. USE 75 DEGREE COPPER CONDUCTORS FOR FIELD INSTALLATION.
4. FOR HIGH SPEED IFM, DISCONNECT RED WIRE FROM TDR;3 AND CONNECT BLK WIRE FROM IFM. FOR MEDIUM SPEED, DISCONNECT RED WIRE FROM TDR;3 AND CONNECT BLU WIRE FROM IFM.

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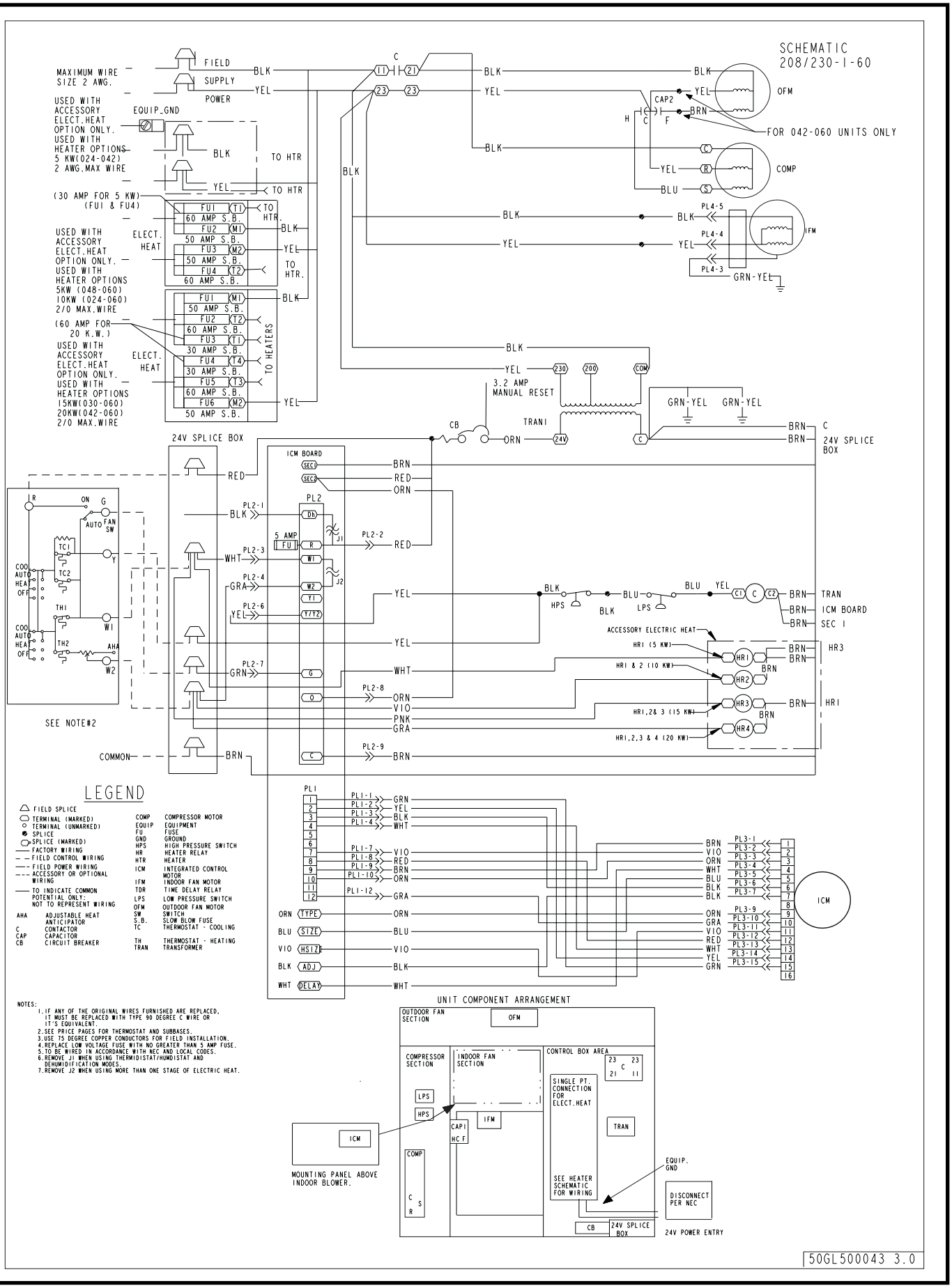
ICM FIOP wiring schematic— 208-230-1-60



Controls

Operating sequence

Cooling — When the system thermostat calls for cooling, 24 V is supplied to the "Y" and "G" terminals of the thermostat. This completes the circuit to the contactor coil (C) and indoor (evaporator) fan time delay relay (TDR). The normally open contacts of C close and complete the circuit to compressor motor (COMP) and to outdoor (condenser) fan motor (OFM). Both motors start instantly. The set of normally open contacts of TDR close and complete the circuit through IFM. The IFM starts instantly.

On the loss of the thermostat call for cooling, 24 v is removed from both the "Y" and "G" terminals (provided the fan switch is in the "AUTO" position) deenergizing the compressor contactor and opening the contacts supplying power to compressor/OFM. After a 60-second delay, the IFM shuts off. If the thermostat fan selector switch is in the "ON" position, the IFM will run continuously.

Heating — If accessory electric heaters are installed, on a call for heat, circuit R-W is made through the thermostat contacts. Circuit R-G is made which energizes the TDR. If the heaters are staged, then the thermostat closes a second set of contacts (W2) when second stage is required. When thermostat is satisfied, contacts open, deenergizing the heater relay and the TDR. After a 60-second delay, the IFM shuts off. If the thermostat fan selector switch is in the "ON" position, the IFM will run continuously.

NOTE: On units with a Time Guard® II device: once the compressor has started and then stopped, it cannot be restarted again until 5 minutes have elapsed.

ICM FIOP Models Only — The indoor blower operation with a call for fan operation (G) in cooling mode will perform by the on/off delay profile selected at start up on the Easy Select™ Board.

Guide specifications

Packaged Electric Cooling Units
Constant Volume Application

HVAC Guide Specifications
Size Range: **2 to 5 Tons, Nominal Cooling**
Carrier Model Number: **50GL**

Part 1—General

SYSTEM DESCRIPTION

Outdoor rooftop or ground mounted, electric cooling unit utilizing a hermetic compressor for cooling duty and optional electric heating. Unit shall discharge supply air vertically or horizontally as shown on contract drawings. Condenser fan/coil section shall have a draw-thru design with vertical discharge for minimum sound levels.

QUALITY ASSURANCE

A. Unit shall be rated in accordance with ARI Standards 210/240-94 and 270-95.
B. Unit shall be designed in accordance with UL Standard 1995.
C. Unit shall be manufactured in a facility registered to ISO 9001 manufacturing quality standard.
D. Unit shall be UL listed and c-UL certified as a total package for safety requirements.
E. Roof curb shall be designed to conform to NRCA Standards.
F. Insulation and adhesives shall meet NFPA 90A requirements for flame spread and smoke generation.
G. Cabinet insulation shall meet ASHRAE Standard 62P.

DELIVERY, STORAGE AND HANDLING

Unit shall be stored and handled per manufacturer's recommendations.

Part 2 — Products

EQUIPMENT

A. General:
Factory-assembled, single-piece, cooling unit. Contained within the enclosure shall be all factory wiring, piping, controls, refrigerant charge (R-410A), and special features required prior to field start-up.

B. Unit Cabinet:
1. Unit cabinet shall be constructed of phosphated, zinc-coated, pre-painted steel capable of withstanding 500 hours of salt spray.
2. Normal service shall be through a single removable cabinet panel.
3. The unit shall be constructed on a rust proof basepan that has an externally trapped, integrated sloped drain pan.
4. Evaporator fan compartment top surface shall be insulated with a minimum 1/2-in. thick, flexible fiberglass insulation, coated on the air side and retained by adhesive and mechanical means. The evaporator wall sections will be insulated with a minimum semi-rigid foil-faced board capable of being wiped clean. Aluminum foil-faced fiberglass insulation shall be used in the entire indoor air cavity section.
5. Unit shall have a field-supplied condensate trap.

C. Fans:
1. The evaporator fan shall be 3-speed, direct-drive, as shown on equipment drawings, or factory installed variable speed motor and control.
2. Fan wheel shall be made from steel, and shall be double-inlet type with forward curved blades with corrosion resistant finish. Fan wheel shall be dynamically balanced.
3. Condenser fan shall be direct drive propeller type with aluminum blades riveted to corrosion resistant steel spiders, be dynamically balanced, and discharge air vertically.

D. Compressor:
1. Fully hermetic compressors with factory-installed vibration isolation.
2. Scroll compressors shall be standard on all units.

E. Coils:
Evaporator and condenser coils shall have aluminum plate fins mechanically bonded to seamless copper tubes with all joints brazed. (Copper/copper and vinyl-coated construction available as option.) Tube sheet openings shall be belled to prevent tube wear.

F. Refrigerant Metering Device:
Refrigerant metering device shall be of the single body fixed orifice feed type.

G. Filters:
Filter section shall consist of field-installed, throwaway, 1-in. thick fiberglass filters of commercially available sizes.

H. Controls and Safeties:
1. Unit controls shall be complete with a self-contained low voltage control circuit.
2. Units shall incorporate an internal compressor protector that provides reset capability.
3. Unit shall provide High and Low/Loss-of-Charge Pressure Safety Protection.

I. Operating Characteristics:
1. Unit shall be capable of starting and running at 125°F ambient outdoor temperature, exceeding maximum load criteria of ARI Standard 210.
2. Compressor with standard controls shall be capable of operation down to 40° F ambient outdoor temperature. (55°F with ICM FIOP)
3. Unit shall be provided with 60-second fan time delay after the thermostat is satisfied (with standard indoor blower motor).
4. On ICM FIOP-Fan on/off delay profile is selected (for cooling) on the Easy Select™ Board.

J. Electrical Requirements:
All unit power wiring shall enter the unit cabinet at a single location.

K. Motors:
1. Compressor motors shall be of the refrigerant-cooled type with line-break thermal and current overload protection.

Guide specifications (cont)

2. All fan motors shall have permanently lubricated bearings, and inherent, automatic reset, thermal overload protection.
3. Condenser fan motor shall be totally enclosed.

L. Grille

1. Louvered Grille:
   Louvered grille shall be standard on all units.

M. Special Features Available

1. ICM Indoor Blower FIOP: Integral control motor shall be a factory installed option for optimizing comfort levels in all operating modes and increasing system efficiency.
2. Coil Options:
   Shall include factory-installed optional copper/copper and vinyl-coated refrigerant coils.
3. Economizer:
   a. Economizer controls capable of providing free cooling using outside air.
   b. Equipped with low leakage dampers not to exceed 3% leakage, at 1.0 in. wg pressure differential.
   c. Spring return motor shuts off outdoor damper on power failure.
4. Flat Roof Curb:
   Curbs shall have seal strip and a wood nailer for flashing and shall be installed per manufacturer's instructions.
5. Manual Outdoor Air Damper:
   Package shall consist of damper, birdscreen, and rainhood which can be preset to admit outdoor air for year-round ventilation.
6. Thermostat:
   To provide for one-stage heating and cooling in addition manual or automatic changeover and indoor fan control.
7. Low Ambient Package:
   Shall consist of a solid-state control and condenser coil temperature sensor for controlling condenser-fan motor operation, which shall allow unit to operate down to 0° F outdoor ambient temperature.
8. Filter Rack Kit:
   Shall provide filter mounting for downflow applications.
9. Square-To-Round Duct Transitions:
   Shall have the ability to convert the supply and return openings from rectangular to round. (024-048 only)
10. Compressor Protection (Time Guard® II Kit)
    Solid-state control shall protect compressor by preventing "short cycling."
11. Crankcase Heater:
    Shall provide anti-floodback protection for low-load cooling applications.
12. Electric heaters:
    a. Electric heater shall be available as a field-installed option.
    b. Heater elements shall be open wire type, adequately supported and insulated with ceramic bushings.
    c. Electric heater packages must provide **single point** power connection capability.
13. Compressor Hard start kit:
    Shall be available to give a boost to the compressor motor at each start-up. (Single Phase only).

Manufacturer reserves the right to discontinue, or change at any time, specifications or designs without notice and without incurring obligations.